











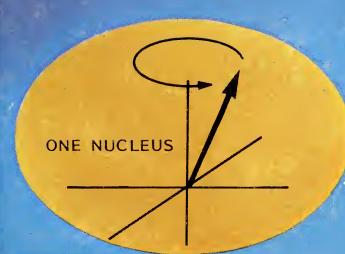
JANUARY 1985

VOL.78

NO.1

INDIANA MEDICINE

The Journal of the Indiana State Medical Association



JX =. A. COUNTWAY LIS JF WED N.E. JOURN OF MED 10 SHATTUCK STREET BUSTUN





NUCLEAR MAGNETIC RESONANCE PHYSICS FOR PHYSICIANS

FOR MEDICAL PROFESSIONAL LIABILITY COVERAGE, THE ISMA STRONGLY RECOMMENDS PHYSICIANS INSURANCE COMPANY OF INDIANA. Several companies are

anxious to provide most Indiana physicians with medical professional liability insurance coverage. *Only one* has received the formal endorsement, support, and sponsorship of the Indiana State Medical Association. That company is PICI, Physicians Insurance Company of Indiana.

Why PICI?

Because PICI is committed to providing Indiana physicians with the best possible coverage at the lowest possible rates throughout their medical careers. Indiana physicians dominate the company's board of directors and serve on budget, claims and underwriting committees. PICI is a publicly held stock company, and provides annual as well as periodic interim financial reports.

With PICI, you know what's happening to your premium dollars. You will receive information about claims experience and trends. You are guaranteed input on company activities, through your physician members of the company's board and its committees. You are part of the company.

Through PlCl, you also receive competitively priced auto, homeowners, office protection and personal umbrella coverages, designed and offered with the same long term commitment.

Compare all that PICI offers with what you will obtain from other sources of medical professional liability and other essential insurance coverages. We think you'll agree that the ISMA has endorsed the best.

The Accountable Company . . .



3901 West 86th Street Suite 350 P.O. Box 689059 Indianapolis, Indiana 46268 (317) 872–3046 or toll free in Indiana (800) 732–1313

INDIANA

Vol. 78, No. 1 JANUARY 1985 WINNER Sandoz Medical Journalism Award—1976, 1979

SCIENTIFIC ARTICLES

- 11 Childhood Sexual Abuse: Guidelines for Evaluation (79th CME article)
- 20 COVER FEATURE NMR Physics for Physicians
- 30 Critical Care Medicine: Continuous Monitoring of Blood Gases in the ICU, OR
- 32 Perspectives in Small Bowel Imaging
- 34 Umbilical Arterial Rupture: Major Complication of Catheterization
- 36 NIH Synopsis:
 Mood Disorders

FEATURES

- 37 Warning: OTC Ibuprofen
- 45 Commentary: Our American Renaissance
- 46 Competition in the Marketplace of Medical Care
- 49 Contracting Questions: Alternative Delivery Systems
- 56 Editorials, Letters

DEPARTMENTS, MISCELLANEOUS

- 3 Medical Museum Notes
- 1 hat's New?
- 6 F ure File
- 6 Drug Names
- 8 Cancer Corner
- 52 Auxiliary Report
- 63 CME Quiz
- 64 News Notes
- 67 CME Awards
- 77 Obituaries
- 78 ISMA Officers, Trustees



.14 N 3 O 1985

USPS 284-440 ISSN 0746-8288

OFFICE OF PUBLICATION: 3935 N. Meridian St., Indianapolis, Ind. 46208 Tel: (317) 925-7545

INDIANA MEDICINE (ISSN 0746-8288) is published monthly by the Indiana State Medical Association. Second-class postage paid at Indianapolis, Ind.

POSTMASTER: Send address changes to INDIANA MEDICINE, 3935 N. Meridian St., Indianapolis, Ind. 46208.

Yearly subscription rates: \$20 domestic, \$22 Canada, \$23 foreign. Library rates: \$18 domestic, \$20 Canada, \$21 foreign. Senior ISMA members and full-time medical students—\$10. Single copies not available. Subscriptions renewable only in January and July.

Views expressed do not necessarily reflect the opinions of the editors. No copyright is claimed, unless specifically indicated. Copyright rests solely with authors, who are responsible for statements made in their articles. Scientific and editorial contributions are accepted for exclusive publication, subject to editorial requirements. Publication deadline: Ist day of month preceding month of issue. Instructions for authors available upon request.

All issues since 1967 are available on microfilm from University Microfilms International, 300 N. Zeeb Rd., Ann Arbor, Mich. 48106. Indexed in Index Medicus and Hospital Literature Index.

Advertising rates and data available upon request.

EDITOR

Frank B. Ramsey, M.D.

MANAGING EDITOR

Martin T. Badger

BUSINESS MANAGER

Donald F. Foy

CIRCULATION MANAGER

Karyl Hancock

EDITORIAL BOARD

Elton Heaton, M.D.

Nancy C. A. Roeske, M.D.

(Terms expire Dec. 31, 1985)

Alvin J. Haley, M.D.

Alan T. Marty, M.D.

(Terms expire Dec. 31, 1986)

Thomas J. Conway, M.D.

I.E. Michael, M.D.

(Terms expire Dec. 31, 1987)

Vacant

Vacant

(Terms expire Dec. 31, 1985)

ABOUT THE COVER (Terra) Certain atomic nuclei will wobble around the direction of any strong



Certain atomic nuclei will wobble around the direction of any strong external magnetic field, much like a spinning top will wobble under the force of gravity. These nuclei can absorb energy when they are exposed to radio waves. The energy they release when the radio waves are turned off can be used for imaging. Hydrogen nuclei have this property, and they are the ones most commonly involved in nuclear magnetic resonance imaging of the human body. For details, see "NMR Physics for Physicians," page 20.

CONSULTING EDITORS

Steven C. Beering, M.D., Charles A. Bonsett, M.D., A. W. Cavins, M.D., Rodney A. Mannion, M.D., Lall G. Montgomery, M.D., Paul S. Rhoads, M.D., W. D. Snively, M.D., L. W. Wilkens, M.D.

PRE-REGISTER NOW

MEDICLINICS

POSTGRADUATE MEDICAL REFRESHER COURSE

FORT LAUDERDALE, FLORIDA

MARCH 4 - MARCH 15, 1985

PRACTICAL UPDATE FOR PRIMARY CARE PHYSICIANS

50 CATEGORY 1 CREDIT HOURS

LIMITED 25 CREDIT ONE WEEK COURSE AVAILABLE

"This program has been reviewed and is acceptable for 50 Prescribed Hours by the American Academy of Family Physicians. As an organization accredited for continuing medical education, the Florida Academy of Family Physicians designates this program as meeting the criteria for 50 credit hours in Category 1 of the Physician's Recognition Award of the American Medical Association. This program also is acceptable for 50 Mandatory hours by the Florida Medical Association.

PRE-REGISTRATION — \$450.00

(UNTIL FEBRUARY 15, 1985)

FOR INFORMATION CONTACT:

MEDICLINICS 2917 South Ocean Blvd Suite 905 Highland Beach Florida 33431 (305) 272-8973

EXCELLENT FACULTY, PEAK OF WINTER SEASON

CHOICE OF 300 HOTELS & MOTELS

Dx: recurrent herpes labialis

"Herpecin-L Lip Balm is the treatment of choice for peri-oral herpes." GP, New York

"In the management of herpes labialis, Herpecin-L is a conservative approach with low risk / high benefit." Derm., Miami

"Staff and patients find Herpecin-L remarkably **effective**." Derm., New Orleans

OTC. See *P.D.R.* for information. For trade packages to make your own clinical evaluation, write:

CAMPBELL LABORATORIES INC.
P.O. Box 812-M, FDR, NY, NY 10150

Herpecin-L Lip Balm Sig: q.h. Sig: needed

WHILLY WILLIAM

Herpecin-L

In Indiana, "HERPECIN-L" Cold Sore Lip Balm is available at all Hook, Peoples, Revco, Ribordy and SupeRx Drug Stores and other select pharmacies.

MEDICAL MUSEUM NOTES

CHARLES A. BONSETT, M.D., Indianapolis



IKE LANNING, a dyed-in-the-wool Lincoln buff, is collecting data pertaining to the assassination of Abraham Lincoln; he is particularly interested in the role, if any, played by Oliver and Charles Gatch, the father and uncle, respectively, of Dr. Willis D. Gatch, a former dean of the l.U. School of Medicine (1931-46).

Mr. Lanning visited the Medical Museum because of an article in the *Indiana Medical History Quarterly* (3:3, 1977) regarding Dr. Willis Gatch. The article stated that these two relatives were in Ford's Theater at the time of the assassination and that Oliver Gatch (Captain, U.S. Army) and his brother, Dr. Charles Gatch (former surgeon in the Union Army) were the first to attend the President and that they helped carry him across the street, using the chair in which he was sitting as a litter.

This informaiton, however, conflicted with a report Mr. Lanning said he had obtained from a national source—it seems a record number of physicians claimed to have attended Lincoln that night—and he was interested in *our* source. The reference in the *Quarterly* revealed this to be *Surgery*, *Gynecology and Obstetrics* (93:645-53, 1951). The article itself gives no reference. Mr. Lanning had proof that no chair was used so he was questioning the accuracy of the remainder of the claim.

The Indianapolis Star (Sunday, Aug. 4, 1907, Magazine Section, p. 8) provides a prime source of information to answer the question. The article, abbreviated to fit this page, follows:

"WITNESSED THE ASSASSINA-TION OF PRESIDENT LINCOLN.

"Living in quiet retirement on a large farm near Aurora, Ind. is Capt. O. C. Gatch, who in all probability is the only man living today who witnessed the



Capt. Oliver C. Gatch

A Hoosier Witness To the Lincoln Assassination

assassination of President Lincoln and who was present at the death bed of the great emancipator . . .

"He arrived in Washington, D.C. on the morning of April 14, 1865. He was accompanied by his brother, Dr. Charles Gatch, who had served as an Army surgeon under General Rosecrans. The brothers... went together to see the play 'Our American Cousin' at Ford's Theater. They (were) within ten feet of the door leading to Lincoln's box...

"About 10 o'clock (they) noticed a man (enter) the President's box. Almost immediately thereafter a pistol shot rang out and the stranger appeared in front of the box . . . He vaulted over the railing

to the stage below, a distance of fourteen feet . . . He faced the audience . . . exclaiming dramatically, 'Sic semper tyrannis,' and almost instantly disappeared . . .

"The guard, recognizing in me a Union soldier, pushed forward and whispered to me that the President had been shot, and asked me to render what aid I could... We found President Lincoln lying back in his chair with loosened clothing. On his face was the pallor of death. Major Rathbone asked me if I knew of a physician or surgeon close at hand. I immediately called by brother, who entered the box. Going to the chair of the death-stricken President, he placed his hand across the back of Lincoln's head. He at once felt the bullet hole in the skull; blood filled his hand...

" 'It was suggested that the dying man be removed from the theater . . . Major Rathbone, the guard, my brother, and myself then lifted and carried him across the street.' (No mention of the chair) . . .

"'We remained at the President's side until he died, and afterward assisted in putting the body into the hearse, which, guarded by a body of cavalry, conveyed it to the White House . . .'"

Dr. Kemper, in his *Medical History of Indiana*, makes no mention of Dr. Charles Gatch, nor does the obituary file of the I.U.S.M. library, nor the biographical file of the Indiana State Library. Kemper does mention Dr. James T. Gatch of Lawrenceburg (1831-1907), a surgeon of the Sixteenth Regiment, Indiana Volunteers, and president of the Indiana State Medical Society in 1890, who (according to Mrs. Robert S. Ashby, daughter of Dr. Willis Gatch) was a brother of Charles and Oliver.

Mike Lanning only touched the surface of his interesting research with this incidental detail. His completed study should make fascinating reading.

WHAT'S NEW?

Abbott HomeCare, a division of Abbott Laboratories, has introduced a microprocessor-controlled volumetric infusion pump designed specifically for patients receiving intravenous nutritional therapy at home. It is called "Abbott HomeCare Pump Model 4H." It has a restricted delivery rate ranging from 1 to 350 ml/hr and a dose limit range to 5000 ml, to provide added convenience and safeguards for home patients.

Brentwood Instruments offers a short form catalog which describes 11 different ECG and stress test oriented products. From the low-cost, single channel EZ-One ECG to the FCP-200, computer-aided ECG, this catalog carries Brentwood's complete line.

Amko announces a new Wittner biopsy punch which features angular jaws with teeth. It is 9" long and is made of stainless steel.

Norwich Eaton Pharmaceuticals announces that Didronel (etidronate disodium) is now available in 400 mg tablets. Doses in the range of 800 to 1600 mg/day are used for the prevention and treatment of heterotopic ossification following total hip replacement or due to spinal cord injury. The new double strength tablets will require fewer tablets daily and will thus facilitate compliance.

RIM

"Seems as if when we land a government contract, it takes months and reams of government paperwork before that land turns to paydirt."

News of what is new in the medical supply industry is composed of abstracts from news releases by book publishers and manufacturers of pharmaceuticals, clinical laboratory supplies, instruments and surgical appliances. Each item is published as news and does not necessarily constitute an endorsement of a product or recommendation for its use by INDIANA MEDICINE or by the Indiana State Medical Association.

Eastman Kodak Company has published a new brochure describing the streamlined technology, operation, cost-effectiveness, and technique of the Kodak Ektachem 400 analyzer. The title is "Streamline the Science of Clinical Chemistry with the Kodak EKTACHEM 400 Analyzer."

Two new custom-built motor coaches, fully equipped with Kodak Ektachem 700 analyzers, are currently providing a forum for hands-on demonstrations to clinical chemists, clinical pathologists, medical technologists and administrators at hospitals throughout the nation. The main purpose of the vans is to provide busy health-care professionals with a convenient and time-efficient way to see an Ektachem 700 analyzer in operation.

EBI Medical Systems makes an electromagnetic device recommended for use with slow-to-heal fractures. The device is light-weight and is easily portable. It is effective if placed for some 10 hours daily over the part of the cast nearest the fracture.

Braintech announces the BEAM® neurological imaging system. It takes analysis of the brain's functions several steps beyond the traditional EEG. BEAM technology integrates the conventional EEG technique with high-speed processing to generate high quality, detailed color "maps" of the brain's electrical activity. BEAM reveals abnormalities which may or may not show in a CT scan. Also, the new technique graphically represents a myriad of cognitive dysfunctions ranging from dyslexia to Alzheimer's disease.

Brentwood Instruments has a product information bulletin which describes the operation of the E-Z Scan 200 Ambulatory ECG Event Recorder. It is ideal for capturing transient cardiac symptoms. The instrument is a small, lightweight, micro-cassette recorder than can be comfortably worn during normal daily routine. At the touch of a button the cardiac rhythm strip is captured for playback later on any ECG system. The bulletin addresses the full recording capabilities as well as technical specifications and standard accessories.

Lanier Business Products announces a new software designed specifically for medical records in hospitals and other medical facilities. "The Lanier Medical Team" is a chart management and transcription system designed to reduce typing time, increase productivity and improve record maintenance efficiency.

Polaroid Corporation has instant slide films for use with any 35mm camera. Polaroid 35mm color or black-and-white instant slide films can be processed and mounted for viewing or projection in less than five minutes without a darkroom. The system consists of a low-cost manual processor, a simple, inexpensive slide mounter, and new, easy-to-use Polaroid slide mounts.



"You may complain to the computer until the doctor arrives."

Let your patients shop at home for health care products.

HOME HEALTH CAR

Our free catalog has everything from hospital beds to bandages, from diabetic syringes to wheelchairs. All delivered to your patients' doors from one of America's largest and most dependable suppliers. Your patients can order by mail or toll-free phone. They'll get fast service and phone consultation by experienced professionals. If there's a Peoples Drug Store in your area, patients may order items through the catalog at the pharmacy. You can write or call the Peoples Home Health Care Center listed below for your personal copy of the

FREE CATALOG

catalog for your patients' use.

PHONE TOLL-FREE (800) 368-4243



8903 Three Chopt Road, Richmond, VA 23229

FUTURE FILE

GYN Malignancies

"Advances in the Management of GYN Malignancies" is the subject of a program to be held April 12 at the Airport Holiday Inn, Indianapolis.

The course, accredited for AMA Category I credit, will feature Dr. Taylor Wharten and Dr. Allen Lichter. It is sponsored by the Depts. of Radiation Oncology and OB-GYN, Indiana University School of Medicine.

For additional information, contact Alison Calkins, M.D., Radiation Therapy 071, 1100 W. Michigan St., Indianapolis 46223—(317) 264-2524.

Cardiology Conference

"Cardiology for the Primary Care Physician" is the subject of a CME conference to be conducted March 22 to 24 at the Palm Springs Spa Hotel, Palm Springs, Calif. by the University of California at San Diego.

Accreditation is for 18 hours with the AMA and AAFP.

Write of phone the CME Office, M-017, UCSD School of Medicine, La Jolla, Calif. 92093—(619) 452-3940.

The Journal of the American Medical Association publishes a list of CME courses for the United States twice yearly. The January listing features courses offered from March through August; the July listing features courses offered from September through February.

Colorado Trauma Meeting

The Plastic Surgery Educational Foundation and the Rocky Mountain Chapter of the Western Orthopedic Association are sponsoring a scientific medical meeting on "Lower Extremity Trauma" at Steamboat Springs, Colo. March 17 to 20.

The registration fees will be \$500 for members of the two organizations, \$600 for guests and \$425 for residents with letter of verification.

For further information write the Plastic Surgery Educational Foundation, 233 N. Michigan Ave., Suite 1900, Chicago 60601.

Vail Psychiatry Meeting

The seventh annual Vail Psychiatry Conference, "Update on Schizophrenia: Some Current Diagnostic and Treatment Perspectives," will be conducted March 16 to 22 at Vail, Colo.

The tuition is \$365 and \$240 for residents. Optional workshops will be presented from 9:15 to 10:45 a.m. each day. Registration is required.

For details write or phone Brenda Vink, The Menninger Foundation, Box 829, Topeka, Kansas 66601—(913) 273-7500, extension 5992.

Family Practice Refresher

A Family Practice Refresher Course will be conducted March 25 to 29, at the Palm Springs (Calif.) Spa Hotel by the University of California at San Diego.

Accreditation is for 30 hours with the AMA and AAFP.

Write or phone the CME Office, M-017, UCSD School of Medicine, La Jolla, Calif. 92093—(619) 452-3940.

CONTINUED ON PAGE 42

Look-Alike and Sound-Alike Drug Names

BENJAMIN TEPLITSKY, R. PH. Brooklyn, N.Y.

Look-alike and sound-alike drug names can be misinterpreted by a nurse reading doctors' orders or by a pharmacist compounding physicians' prescriptions. Such misunderstandings can result in the administration of a drug not intended by the prescriber. Awareness of such look-alike and sound-alike drug names can reduce potential errors.

Category: Brand Name:

Generic Name: Dosage Forms:

Category: Brand Name: Generic Name: Dosage Forms: DEPEN

Wilson's disease Cuprimine, MSD Depen, Wallace Penicillamine Tablets, Capsules

NITROSPAN Angina pectoris

Angina pectoris Nitrospan, USV Nitroglycerine Capsules ENDEP

Antidepressant Endep, Roche

Amitriptyline HCl Tablets

DITROPAN

Antispasmodic Ditropan, Marion Oxybutynin Chloride Tablets, Syrup

QUESTIONS EVERY SERIOUS INVESTOR SHOULD ASK THEIR FINANCIAL CONSULTANT.

- **1.** Are my expectations for each investment realistic ones?
- **2.** How can the investment that was right for my neighbor not be right for me?
- **3.** How do I establish my financial goals?
- **4.** What portion of my assets should be in eash?
- 5. How can I save on my taxes?
- **6.** How can I protect my investments against fluctuating interest rates?
- 7. How can I determine the safety or risk in a particular investment?
- 8. What questions should Lask when

someone recommends a stock?

9. How can I use credit to my advantage?

The more serious you are as an investor, the more questions you have to ask.

Because it is *who* you are, what your goals are, what your expectations are, what makes you comfortable that make every answer unique.

It is the communication process that makes arriving at answers possible.

If you've been asking yourself these questions, turn the monologue into a dialogue. Talk with us. And invest your time before you invest your money.

Shearson Lehman/American Express and The Serious Investor. Minds Over Money.**

The More Serious You Are As An Investor, The More Questions You Have To Ask		Financial Consult n/American Expre ngton St., Suite 10 liana 46204 ese questions & chure, "The M	ant ss, Inc. 01E und 30 more, call or lore Serious You Are
NAMI (please print) ADDRESS			SHEARSON LEHMAN
CITY	SLAH	ZIP	LEIMVERN
BUSINESS PHONE	HOMEPHONE		AMERICAN
EMISTING CTEMIS PLEASE EIST SOUR ACCOUNT NUMBER IN ORDER TO EXPLOIT HANDEING OF YOUR REQUEST		American Express American Express	EXPRESS

WILLIAM M. DUGAN, JR., M.D.

Clinical Oncology Center Methodist Hospital of Indiana, Inc. New information from Indiana Division American Cancer Society, Inc. 4755 Kingsway Dr., Suite 100 Indianapolis 46205

EVERY PHYSICIAN'S OFFICE— A CANCER DETECTION CENTER

CANCER CORNER

Cancer Response System

A new telephone education service was instituted in Indiana last month as a result of an earlier realization by the American Cancer Society that there was a need to expand its method of providing medical and scientific information to the public.

It's called the Cancer Response System and offers a toll-free number for people who want answers to questions about cancer and its prevention, detection, diagnosis and treatment. The catchphrase is "When You Don't Know Where to Turn, Call 1-800-ACS-2345."

The toll-free help line is available from 9 a.m. to 9 p.m., Monday through Friday. In addition to answering cancer questions, information will also be provided about the American Cancer Society and its programs and services.

Medical recommendations, the province of physicians, will not be made on the help line. Its purpose is strictly to provide an educational and informational service, not psychosocial counseling. (An answering service will record calls made after hours).

Professional Education

"Detecting Colon and Rectum Cancer" (PE Publication 3381) includes

Now we can detect a breast cancer smaller than this dot.

At such an early stage, your chances of living a long, healthy life are excellent. But we need your help. The only proven way to detect a cancer this small is with a mammogram. A mammogram is a low-radiation x-ray of the breast capable of detecting a cancer long before a lump can be felt. If you're over 50, a mammogram is recommended every year. If you're between 40 and 50, or have a family history of breast cancer, consult your doctor. In addition, of course, continue your regular selfexaminations.

American Cancer Society

Health Hazards of Smoking

The public is not adequately informed about the health hazards of smoking.

- 1. Recent findings show that about 40% of high school seniors do not believe there is a great health risk in smoking.
- 2. Nearly 50% of all women do not know that smoking during pregnancy increases the risk of stillbirth and miscarriage.
- 3. Over 30% of the public is unaware of the relationship between smoking and heart disease; over 50% does not know that smoking causes many cases of heart attack.
- 4. Almost 60% of the public is unaware that most cases of emphysema are smoking-related.

5. Over 40% of the public does not know that most cases of lung cancer are caused by smoking.



information on the ACS's three-year Colorectal Health Check Program, a fact sheet about the early detection of colorectal cancer with current ACS guidelines, a summary of the survey on public attitudes about this cancer, and two lengthy articles on the use of the stool blood test in screening for colorectal cancer. It is available from the Distribution Department.

Another new pamphlet, "Consolidated Statement on Mammography" (Code 3431) explains why the ACS changed its guidelines for mammography as a cancer detection modality, especially in women ages 40-49. It discusses the benefits of mammography and reviews the current status of the radiation aspects of this technique. The pamphlet provides valuable background information for primary care physicians and other health professionals who care for asymptomatic women

Cancer Nursing Scholarship

Applications for the Ruth Royster Memorial Scholarship in Cancer Nursing are due by March 15, 1985. The scholarships, for graduate nursing students preparing to become instructors in cancer nursing or clinical specialists in cancer nursing, begin in September. This training leads to a master's degree.

Ruth Royster, R.N., a retired nurse and widow of a Muncie physician, was a cancer patient for several years before her death. She saw the need for increasing nurse interest in oncology throughout the state. It was her desire to fund two, one-time scholarships to two deserving nurses who would dedicate their interests to humanity through cancer nursing.

This nursing scholarship provides a maximum of two years of full-time study in a graduate program in nursing; graduate studies must be accredited by the National League for Nursing; students are expected to study full-time; and second-year funding is contingent upon satisfactory progress in the graduate program as documented in student and faculty reports.

BALANCED CALCIUM CHANNEL BLOCKADE!



Low incidence of side effects

CARDIZEM® (diltiazem HCl) produces an incidence of adverse reactions not greater than that reported with placebo therapy, thus contributing to the patient's sense of well-being.

*Cardizem is indicated in the treatment of angina pectoris due to coronary artery spasm and in the management of chronic stable angina (classic effort-associated angina) in patients who cannot tolerate therapy with beta-blockers and/or nitrates or who remain symptomatic despite adequate doses of these agents.

References:

- 1. Strauss WE, McIntyre KM, Parisi AF, et al: Safety and efficacy of diltiazem hydrochloride for the treatment of stable angina pectoris: Report of a cooperative clinical trial. Am J Cardiol 49:560-566, 1982.
- Pool PE, Seagren SC, Bonanno JA, et al: The treatment of exerciseinducible chronic stable angina with diltiazem: Effect on treadmill exercise. <u>Chest</u> 78 (July suppl):234-238, 1980.

Reduces angina attack frequency* 42% to 46% decrease reported in

multicenter study.

Increases exercise tolerance*

In Bruce exercise test, control patients averaged 8.0 minutes to onset of pain; Cardizem patients averaged 9.8 minutes (P < .005).

CARDIZEM

(diltiazem HCl)

THE BALANCED
CALCIUM CHANNEL BLOCKER

PROFESSIONAL USE INFORMATION



DESCRIPTION

(diltiazem hydrochloride) is a calcium ion influx inhibitor (slow channel blocker or calcium antagonist). Chemically, diltazem hydrochloride is 1,5-Benzothiazepin-4(5H)one,3-(acetyloxy) -5-12 (dimethylamino)ethyl-2,3-dihydro-2-(4 methoxyphenyl) , monohydrochloride.(+)-cis- The chemical structure is

Diffrazem hydrochloride is a white to off-white crystalline powder with a bitter taste. It is soluble in water, methanol, and chloroform It has a molecular weight of 450.98. Each tablet of CARDIZEM contains either 30 mg or 60 mg diltiazem hydrochloride for oral administration

CLINICAL PHARMACOLOGY

The therapeutic benefits achieved with CARDIZEM are believed to be related to its ability to inhibit the influx of calcium ions during membrane depolarization of cardiac and vascular smooth

Mechanisms of Action. Although precise mechanisms of its

Mechanisms of Action. Although precise mechanisms of its antaingnial actions are still being delineated, CARDIZEM is believed to act in the following ways:

1 Angina Due to Coronary Artery Spasm. CARDIZEM has been shown to be a potent dilator of coronary arteries both epicardial and subendocardial. Spontaneous and ergonovine-induced coronary artery spasm are inhibited by CARDIZEM.

2. Exertional Angina. CARDIZEM has been shown to produce increases in exercise tolerance, probably due to its ability to reduce myocardial oxygen demand. This is accomplished via reductions in heart rate and systemic blood pressure at submaximal and maximal exercise work loads.

depolarizing current in excitable tissue. It causes excitation-contraction uncoupling in various myocardial tissues without changes in the configuration of the action potential Dilitazem produces relaxation of coronary vasculai smooth muscle and dilation of both large and small coronary afteries at drug levels which cause little or no negative inotiopic effect. The resultant increases in coronary blood flow (epicardial and subendocardial) occur in ischemic and nonischemic models and are accompanied by dose-dependent decreases in systemic blood pressure and decreases in peripheral resistance

Hemodynamic and Electrophysiologic Effects. Like other calcium antagonists, diftiazem decreases sinoatrial and atrioventricular conduction in isolated tissues and has a negative inotropic effect in isolated preparations. In the intact animal, prolongation of the AH interval can be seen at higher doses.

In man, diltiazem prevents spontaneous and ergonovine-provoked In man, dilitazem prevents spontaneous and ergonovine-provoked coronary artery spasm. It causes a decrease in peripheral vascular resistance and a modest fall in blood pressure and, in exercise tolerance studies in patients with ischemic heart disease, ieduces the heart rate-blood pressure product for any given work load Studies to date, primarily in patients with good ventricular function, have not revealed evidence of a negative inotropic effect, cardiac output, eection fraction, and left ventricular end diastolic pressure have not been affected. There are as yet few data on the interaction of dilitazem and beta-blockers. Resting heart rate is usually unchanged or slightly reduced by dilitazem. or Slightly reduced by diffrazem
Intravenous diffrazem in doses of 20 mg prolongs AH conduction

time and AV node functional and effective refractory periods approximately 20%. In a study involving single oral doses of 300 mg of CARDIZEM in six normal volunteers, the average maximum PR prolongation was 14% with no instances of greater than first-degree AV block Diltrazem-associated prolongation of the AH interval is not more pronounced in patients with first-degree heart block. In patients

more pronounced in patients with first-degree heart block in patients with sick sinus syndrome, diltiazem significantly prolongs sinus cycle length (up to 50% in some cases)

Chronic oral administration of CARDIZEM in doses of up to 240 mg/day has resulted in small increases in PR interval, but has not usually produced abnormal prolongation. There were, however, three instances of second-degree AV block and one instance of third-degree AV block in a group of 959 chionically treated patients.

Pharmacokinetics and **Metabolism**. Diltazem is absorbed from the tablet formulation to about 80% of a reference capsule and is subject to an extensive first-pass effect, guing an absolute bioavailability (compared to intravenous dosing) of about 40% CARDIZEM undergoes extensive hepatic metabolism in which 2% to 4% of the inchanged duius angers; in the unine in vitro binding studies show. unichanged drug appears in the unine. In vitro binding studies show CARDIZEM is 70% to 80% bound to plasma proteins. Competitive ligand binding studies have also shown CARDIZEM binding is not altered by therapeutic concentrations of digoxin, hydrochlorothrazide, phenylbutazone, propranolol, salicytic acid, or warfarin Single oral doses of 30 to 120 mg of CARDIZEM result in detectable plasma levels within 30 to 60 minutes and peak plasma levels two to three hours after drug administration. The plasma elimination half-life following single of multiple drug administration is approximately 3.5 hours. Desacetyl dilitazem is also present in the plasma at levels of 10% to 20% of the parent drug and is 25% to 5.0% as potent a coronary vasodilator as dilitazem. Therapeutic, blood, levels of CARDIZEM appear to be in the range of 50 to 200 ng/ml. There is a departure from dose-linearity when single doses above 60 mg are given, a 120-mg dose gave blood levels three times that of the 60-mg dose. There is no information about the effect of renal or hepatic. impairment on excretion or metabolism of diltiazem

INDICATIONS AND USAGE

Angina Pectoris Due to Coronary Artery Spasm. CARDIZEM

is indicated in the treatment of angina pectoris due to coronary artery spasm CARDIZEM has been shown effective in the treatment of spontaneous colonary aftery spasm plesenting as Prinzmetal's variant angina (resting angina with ST-segment elevation occurring during attacks)

2 Chronic Stable Angina (Classic Effort Associated Angina).
CARDIZEM is indicated in the management of chronic stable angina CARDIZEM has been effective in controlled trials in reducing angina frequency and increasing exercise tolerance. There are no controlled studies of the effectiveness of the concomitant use of dilitazem and beta blockers or of the safety of this

combination in patients with impalied ventricular function or conduc tion abnormalities

CONTRAINDICATIONS

CARDIZEM is contraindicated in (1) patients with sick sinus syndrome except in the presence of a functioning ventricular pacemaker, (2) patients with second- or third-degree AV block except in the presence of a functioning ventricular pacemaker, and (3) patients with hypotension (less than 90 mm Hg systolic)

WARNINGS

1 Cardiac Conduction. CARDIZEM prolongs AV node refrac-tory periods without significantly prolonging sinus node recov-ery time, except in patients with sick sinus syndrome. This effect may rarely result in abnormally slow heart rates (particularly). in patients with sick sinus syndrome) or second- or third-degree AV block (six of 1243 patients for 0.48%). Concomitant use of diltiazem with beta-blockers or digitalis may result in additive effects on cardiac conduction. A patient with Prinzmetal's angina developed periods of asystotic (2 to 5 seconds) after a single dose of 60 mg of dittazem 2 Congestive Heart Failure. Although dittazem has a negative inotropic effect in isolated animal tissue preparations, hemodynamic

studies in humans with normal ventricular function have not shown a reduction in cardiac index nor consistent negative effects on contractility (dp/dt). Experience with the use of CARDIZEM alone or in combination with beta-blockers in patients with impaired ventricular function is very limited. Caution should be exercised when using the drug in such patients.

3 Hypotension. Decleases in blood pressure associated with CARDIZEM therapy may occasionally result in symptomatic hypotension

Acute Hepatic injury. In rare instances, patients receiving CARDIZEM have exhibited reversible acute hepatic injury as evidenced by moderate to extreme elevations of liver enzymes (See PRECAUTIONS and ADVERSE REACTIONS)

PRECAUTIONS

General, CARDIZEM (diltrazem hydrochloride) is extensively metabolized by the liver and excreted by the kidneys and in bile. As with any new drug given over prolonged periods, laboratory parameters should be monitored at regular intervals. The drug should be used with caution in patients with impaired renal or hepatic function. In subcaution in patients with imparied tend or negatic function in sub-acute and chronic dog and rat studies designed to produce toxicity, high doses of diltiazem were associated with hepatic damage. In special subacute hepatic studies, oral doses of 125 mg/kg and higher in rats were associated with histological changes in the liver which were reversible when the drug was discontinued. In dogs, doses of 20 mg/kg were also associated with hepatic changes, however, these changes were reversible with continued dosing **Drug interaction.** Pharmacologic studies indicate that there

may be additive effects in prolonging AV conduction when using beta-blockers or digitalis concomitantly with CARDIZEM (See WARNINGS

Controlled and uncontrolled domestic studies suggest that concomitant use of CARDIZEM and beta-blockers or digitalis is usually well tolerated. Available data are not sufficient, however, to predict the effects of concomitant treatment, particularly in patients with left ventricular dysfunction or cardiac conduction abnormalities. In healthy volunteers, diltiazem has been shown to increase serum digoxin levels un to 20%

Carcinogenesis, Mutagenesis, Impairment of Fertility. A 24-month study in rats and a 21-month study in mice showed no evidence of carcinogenicity There was also no mutagenic response in in vitto bacterial tests. No intrinsic effect on Fertility was observed

In rats

Pregnancy. Category C. Reproduction studies have been conducted in mice, rats, and rabbits. Administration of doses ranging from five to ten times greater (on a mg/kg basis) than the daily recommended therapeutic dose has resulted in embryo and fetal lethality These doses, in some studies, have been reported to cause skeletal abnormalities. In the perinatal/postnatal studies, there was some reduction in early individual pup weights and survival rates. There was an increased incidence of stillbuths at doses of 20 times the human dose or greater.

There are no well-controlled studies in pregnant women; therefore, use CARDIZEM in pregnant women only if the potential benefit

justifies the potential risk to the fetus

Nursing Mothers. It is not known whether this drug is excreted in human milk. Because many diags are excreted in human milk, exercise caution when CARDIZEM is administered to a nursing woman if the drug's benefits are thought to outweigh its potential risks in this situation

Pediatric Use. Safety and effectiveness in children have not been established

ADVERSE REACTIONS

Serious adverse reactions have been rare in studies carried out to date, but it should be recognized that patients with impaired ventificulai function and cardiac conduction abnormalities have usually been

In domestic placebo-controlled trials, the incidence of adverse reactions reported during CARDIZEM therapy was not greater than that reported during placebo therapy.

The following represent occurrences observed in clinical studies.

which can be at least reasonably associated with the pharmacology of calcium influx inhibition. In many cases, the relationship to CARDIZEM has not been established. The most common occurrences, as well as their frequency of presentation, are edema (2.4%).

headache (2 1%), nausea (19%), dizziness (1.5%), rash (1.3% asthenia (1 2%). AV block (1 1%) in addition, the following event were reported infrequently fless than 1% with the order of present ton corresponding to the relative flequency of occurrence.

Cardiovascular Flushing, airhythmia, hypotension, bradyca dia, palpitations, congestive heart failur syncope

Paresthesia, neivousness, somnolenci tremor, insomnia, hallucinations, and amnesia Nervous System Constipation, dyspepsia, diarrhea, vomiting mild elevations of alkaline phosphatase, SGO Gastrointestinal

SGPT, and LDH Pruritus, petechiae, uiticaria, photosensitivit ermatologic Other Polyuria, nocturia

The following additional experiences have been noted A patient with Prinzmetal's angina experiencing episodes i vasospastic angina developed periods of transient asymptomat asystole approximately five hours after receiving a single 60-m dose of CARDIZEM

dose of CARDIZEM
The following postmarketing events have been reported infr
quently in patients receiving CARDIZEM erythema multiforme, le
kopenia, and extreme elevations of alkaline phosphatase, SGO
SGPT, LDH, and CPK Howevei, a definitive cause and effect betwee
these events and CARDIZEM therapy is yet to be established.

OVERDOSAGE OR EXAGGERATED RESPONSE

Overdosage experience with oral diltitazem has been limite Single oral doses of 300 mg of CARDIZEM have been well tolerate by healthy volunteers. In the event of overdosage or exaggerate response, appropriate supportive measures should be employed addition to gastric lavage. The following measures may be considere Bradycardia Administer atropine (0.60 to 1.0 mg). If the

is no response to vagal blockade, administ

High-Degree AV

Cardiac Failure

Hypotension

isoproferenol cautiously Treat as for bradycardia above Fixed hig degree AV block should be treated with c

diac pacing Administer inotropic agents (isopioteren dopamine, or dobutamine) and diuretics Vasopressors (eg. dopamine or levarterer

bitartrate)

Actual treatment and dosage should depend on the severity of t clinical situation and the judgment and experience of the treati

physician The oial/LD $_{50}$'s in mice and rats range from 415 to 740 mg/ and from 560 to 810 mg/kg, respectively The intravenous LD₉s these species were 60 and 38 mg/kg, respectively The intravenous LD₉s these species were 60 and 38 mg/kg, respectively The oral LD₉s these species were 60 and 38 mg/kg. The toxic dose in man is not known seen in monkeys at 360 mg/kg. The toxic dose in man is not known the control of but blood levels in excess of 800 ng/ml have not been associate with toxicity

DOSAGE AND ADMINISTRATION

Exertional Angina Pectoris Due to Atheroscierotic Conary Artery Disease or Angina Pectoris at Rest Due to Conary Artery Spasm. Dosage must be adjusted to each patienneeds Starting with 30 mg four times daily, before meals and bedtime, dosage should be increased gradually (given in dividoses three or four times daily) at one-to two-day intervals un optimum response is obtained. Although individual patients in respond to any dosage level, the average optimum dosage rangears to be 180 to 240 mg/day There are no available data concing dosage requirements in patients with impaired renal or heps function if the drug must be used in such patients, titration should carried out with patieutal caution. Exertional Angina Pectoris Due to Atheroscierotic Co carried out with particular caution.

Concomitant Use With Other Antianginal Agents

Sublingual NTG may be taken as required to abort ac anginal attacks during CARDIZEM therapy

2 Prophylactic Nitrate Therapy — CARDIZEM may be sat coadministered with short- and long-acting nitrates, but th have been no controlled studies to evaluate the antiangi effectiveness of this combination

3 Beta-blockers. (See WARNINGS and PRECAUTIONS.)

HOW SUPPLIED

Cardizem 30-mg tablets are supplied in bottles of 100 (N 0088-1771-47) and in Unit Dose Identification Paks of 100 (N 0088-1771-49) Each green tablet is engraved with MARION on side and 1771 engraved on the other CARDIZEM 60-mg soc tablets are supplied in bottles of 100 (NDC 0088-1772-47) and in 1 Dose Identification Paks of 100 (NDC 0088-1772-49). Each yel tablet is engraved with MARION on one side and 1772 on the ot

Another patient benefit product from



Indiana Medicine offers its readers a Continuing Medical Education series of articles prepared by the faculty of the Indiana University School of Medicine. The program is coordinated and supported by a grant from the school's Division of Continuing Medical Education.

As an organization accredited for continuing medical education, the Indiana University School of Medicine certifies that this CME activity meets the criteria for one credit hour in Category 1 for the Physician's Recognition Award of the American Medical Association, provided it is used and completed as designated.

To obtain Category 1 credit for this month's article, complete the quiz on page 63.



Childhood Sexual Abuse: Guidelines for Evaluation

MARGARET J. BLYTHE, M.D.¹ DONALD P. ORR, M.D.² Indianapolis has been well documented and publicized as a major social problem.

Since 1962, when Kempe first described "the battered child syndrome," the term "child abuse" has become inclusive of not only physical injuries inflicted upon a child by an adult but emotional and/or sexual trauma as well. Certainly, "sex with children" represents one of the most fundamental and near-universal of "social taboos," and yet, the incidence of child sexual abuse is increasing.

As changes in the understanding of sexuality and childhood development have occurred, the concepts of child sexual abuse have become more defined. Early in the history of psychoanalysis, patients, who often recounted early childhood sexual experiences with adults, were considered to have fantasized those sexual encounters. The famous Oedipal complex, one theory of childhood sexuality, at-

tempts in part to explain these "fantasies." Even by the 1960s, despite increased recognition of childhood sexual abuse, many continued to consider those experiences to be fantasies, or if real, to be non-traumatic to a child's emotional development. Only since the late 1970s, have most acknowledged the emotional trauma and damage which is suffered by the child victims of sexual abuse.

The goal of the following discussion is to help prepare primary care physicians and other health care professionals for their role in the detection and management of cases involving the sexual abuse of children. While most of the comments deal primarily with the evaluation of the young prepubertal child, some comments are included to help in the adolescent victim's evaluation.

Prevalence

Sexual abuse of both male and female children has been identified in every

Correspondence: Margaret J. Blythe, M.D., Dept. of Pediatrics, Indiana University School of Medicine, 702 Barnhill Drive, Indianapolis, Ind. 46223.

Instructor and Fellow, Section of Adolescent Medicine, Dept. of Pediatrics, Indiana University School of Medicine.

Director, Adolescent Medicine; and Associate Professor, Dept. of Pediatrics, Indiana University School of Medicine.

socio-economic strata, racial and cultural level of society. However, the very sceretive and coercive nature of those encounters results in only a fraction of the true number being reported. Furthermore, most victims are included in official published statistics of child abuse and neglect and are not clearly delineated as sexual abuse victims. Therefore, precise data do not exist. Numbers of victims estimated between 300,000 to 500,000 per year are undoubtedly underestimates, since reporting is always biased by the problem of recognition.

Some idea of the extent of the problem was obtained from a survey by Finklehor in 1979. Nearly 800 college students attending six New England schools in the late 1970s completed a questionnaire where the identity of respondents remained anonymous. The students were primarily Caucasian, from middle-class families with predominantly Christian religious backgrounds. Nearly 10.0% of the males and 19.2% of the females described at least one coercive childhood sexual experience with an adult male before the age of 13 years.

Thus, it is likely that a primary care physician who cares for children will encounter childhood sexual abuse if the physician is willing to diagnose the problem when the symptoms "present."

Definition of Sexual Abuse

The term "sexual misuse" was devised by Brant and Tisza as an attempt to correct the misconception that physical injury or harm must be found to diagnose sexual abuse. Sexual assault or molestation of a child is often difficult to detect by physical exam because no evidence of physical injury is apparent. "Sexual misuse" may be explained as any situation where a child is exposed to sexual stimulation inappropriate for that child's age and/or psychosocial development. The emphasis in this explanation is on the broad range of sexual experiences that may occur, often repeatedly. Intentionally listed in detail, the indicated sexually abusive experiences run the spectrum from verbal abuse to indecent exposure to genital fondling to sodomy and coitus

TABLE 1

Spectrum of Sexual Abuse

Verbal sexual abuse Inappropriate disrobing and nudity Genital exposure Inappropriate observation of the child Viewing and/or participating in the production of pornographic materials Inappropriate kissing Fondling breasts and genitals Masturbation—mutual or single Penetration of mouth by penis (fellatio) Female genitalia manipulated by another's mouth (cunnilingus) Penetration of penis in rectum (sodomy) Digital or object penetration of anus Digital or object penetration of vagina Rubbing penis or ejaculating between child's legs or against child's body Penile penetration of vagina

TABLE 2

Verbal Cues Suggestive of Sexual Abuse

Direct reports of sexual abuse
"I don't want to be home with my father alone"

"I can't remember " (Child avoids answering questions of sexual nature)

"I don't like my _____" (Father, stepparent, other relative or friend)

"I don't like to talk about sex "

Child expresses feelings of discomfort in being touched

Mother expresses worries about husband and child—expresses lack of trust in their relationship

Child expresses fear of relative's or babysitter's home (or has strong separation anxieties)

Child reports, "I have a friend who and then goes on to relate incident of sexual experience

'What would you think if someone's father did this

(*Table 1*). If left undetected, the sexual involvement of a child and adult often progresses through this spectrum.

Role of the Physician

The issues involved in sexual crimes, particularly those against children, are complex. It is mandatory that the evaluation and treatment involve a multidisci-

plinary approach. The physician is one member of the core team that should also include a social worker (from the local department of social services or child protective sources) and a legal representative from the police and prosecutor's office when legal action needs to be take. The physician may be in private practice or in an emergency room or based in a community hospital. To work most effectively in a community, perhaps one physician from pediatrics or family practice or obstetrics-gynecology should be identified as "willing and able" to work with these patients and their families. It is mandatory that there is a protocol which ensures a rapid, methodical, and thorough approach to the evaluation of each of these victims. Mental health treatment should be available, particularly for follow-up. The physician's role should include:

- 1) initiating psychosocial evaluation which may be complemented by a more extensive interview by a social services worker, skilled in working with children;
- 2) reporting of the abuse to the proper authorities, if not already reported;
- 3) hospitalizing the victim if the evaluation warrants a need for "a safe place;"
- 4) implementing follow-up to ensure appropriate medical therapy and emotional support;
- 5) continuing communication with the authorities, which may require testifying; and
- 6) participating actively in the community to ensure the administration of competent medical, legal and psychological care to child sexual abuse victims.

Detection

Sexually abused children present in a variety of ways, the simplest presentation being an actual complaint of sexual abuse. But most often the child cannot openly divulge the sexual abuse. Cues may be presented through indirect, verbal communications retrieved by a "sensitive listener" (*Table 2*). This "listener" may be a health professional, a school teacher, a school counselor or any other adult judged by the child to be "trustworthy."

TABLE 3

Behaviors Suggestive of Sexual Abuse

Infant/Toddler

Irritability

Sleep disturbances

Feeding difficulties

Altered leveling activity

Toddler/Preschool

Regressive behavior as thumb-sucking, eneuresis, encopresis

Age-inappropriate understanding of sexual behavior

Persistent and inappropriate sexual play with peers, toys, or themselves Acting-out, aggressive behavior

Acting-out, aggressive

Preschool/School age

Excessive fears, phobias

Sudden changes in behavior such as withdrawal, depression

Sleep disturbances such as night terrors, nightmares

Hints of sexual activity with age-inappropirate understanding of sexual behavior

School Age/Adolescent

Sudden drop in school performance or inability to concentrate in school

Arriving early at school, leaving late with few absences

Poor peer relationships or inability to make friends

Non-participation in school and social activities

Adolescent

Extremely seductive with precocious sexual behavior

Running away from home

Prostitution

Suicidal attempts

Younger children tend to act out their feelings rather than verbalize the conflict, thus presenting with a variety of behavioral problems. Identifying behaviors as suggestive of sexual abuse presents the greatest diagnostic dilemma for the health professional. Many of these indicators are age-dependent, and are more striking if the behavior represents a sudden change in that child's behavior (*Table 3*). For example, the toddler/preschool child is more likely to present with regressive behavior such as thumb-sucking, encopresis or eneuresis, while the adolescent is more likely to attempt running away,

prostitution or even suicide. Many of the behaviors listed are not exclusive to one age group. An adolescent may exhibit fears, phobias or depression while a preschool/school age child may present as extremely seductive with precocious sexual knowledge and behavior.

There are some family situations/environments which seem to place children in positions more vulnerable for sexual abuse (*Table 4*). None of these verbal cues, behaviors, and/or situations alone are diagnostic of sexual abuse. However, if any or several of these subtle, rather non-specific cues are found simultaneously, the possibility of sexual abuse must be considered by the health professional.

Physical findings are easier to identify as possible markers of sexual abuse (*Table 5*). As noted, children presenting with unexplained genital trauma or vaginal bleeding should lead one to at least suspect sexual abuse. Any child with a vaginal/urethral discharge deserves appropriate cultures and evaluation. Any evidence of a sexually transmitted disease (STD), including all cases of gonorrhea, in a child under the age of 13 years requires an investigation. Any pregnancy discovered in a child, especially under the age of 13 years, should be investigated for possible abuse.

Sexual Assault of Children Versus Criminal Rape

The concept of sexual abuse of children should be distinguished from that of criminal rape. While child rapes do occur, most sexual abuse of children is not rape. Over 98% of reported child molesters are male, as are rapists, but the motivations of the perpetrators in each of these crimes are very different. In 75% to 80% of the cases, men who sexually abuse children are known to the child, and in fact, are usually a family member, close friend or an acquaintance of the family. It is this establishment of trust and friendship that perpetrators often use to victimize the child. Rapists are usually strangers who victimize women in vulnerable situations. Men who sexually abuse children do not usually intend to harm the child while rapists seek to display dominance and

TABLE 4

Situations in Which to Consider Sexual Abuse

Mother/father abused as children Unstable family and/or marital relationship

Mother battered and financially dependent

Oldest daughter taking on "little mother" role

Social isolation of the family

Patriarchial family—father is the authoritarian, disciplinarian while mother is submissive, dependent

Unrelated males in household Very overcrowded living conditions Mother chronically ill/incapacitated A retarded or handicapped child

TABLE 5

Physical Findings Suggestive of Sexual Abuse

Evidence of irritation and/or unexplained trauma, or injury to external genitalia, vagina, or rectum

Evidence of vaginal/penile discharges Sexually transmitted diseases (STD) as gonorrhea, venereal warts, herpes simplex type II, trichomonas Pregnancy

even violence toward any victim. Men who sexually abuse children often are described as having warm personalities, being congenial, pleasant. Most often, rapists are described as hating women with brutal, even sadistic tendencies. Sexual molestation of a child tends to occur repetitively over a period of time, not as a one-time assault, which is usually the case with rape.

Roles of Participants

This discussion is not an attempt to give an in-depth description of personality types of those persons involved in child sexual abuse nor of the family. However, understanding some commonly described characteristics of the perpetrator, child victim and mother (caretaker) helps to further define the aspects that make this social problem complex.

Perpetrator

What motivates a man to seek sexual

η¢Ί

gratification with a child, particularly when other adults such as spouses, partners or even prostitutes are available? Are there similar characteristics shared by all men who sexually misuse children whether the perpetrator is termed a pedophile, incestuous father, step-father or uncle?

Blumberg states in all cases the child abuser has a "defective personality and a basic character disorder," with several factors contributing to its development. Perpetrators are often influenced by their own early experiences of having been sexually abused. These adults are usually of normal intelligence and are not psychotic. In short, they are not the impulsive, raving sex maniacs or psychopaths that one might expect. Instead, Blumberg describes these men as seeking the love and approval that was often denied to them while growing up. Manifesting low selfesteem and feeling inferior, these men expect rejection and failure in adult heterosexual relationships. Given the opportunity for access, the perpetrator seduces children. Relationships that are developed with a child are viewed as nonthreatening and non-demanding. He uses the trust, authority, and power that an adult naturally holds over a child to exploit the child victim and to gain his own gratification. Although a history of alcohol abuse often accompanies the perpetrator's lifestyle, it is not considered to be a major factor in a man's motivation for the sexual abuse of children.

Child/Adolescent Victim

One must remember in dealing with sexual abuse, that the child or adolescent is always the victim. Most people confronted with this social issue must wonder why the child/adolescent ever accepted these advances and/or approaches. Developmentally, the infant/toddler is "captured" by a perpetrator's dominance and has no choice. The preschool/young school-age child is often unable to appreciate the sexual feelings the adult associates with affectionate behavior, thus the child is unable to make decisions about cooperating or refusing the advances. The older, school-age child,

perceiving the sexuality attached to certain behaviors, may even be flattered by the attention and initially be willing to participate in the sex acts. The victimized adolescent maintains secrecy to suppress the feelings of guilt and shame. She often continues to comply, fearing the repercussions of detection including any expected punishment for the perpetrator, most often a member or friend of the family. Sometimes it's during adolescence that the female victim actually "allows" detection in order "to escape" a sexual relationship's restrictive rules and to establish more appropriate role relationships with her adolescent peers.

The gender of a victim is often discussed as female because "boys are not supposed to be the usual recipients of sexual attention;" therefore, detection of sexual abuse of male victims is more difficult because boys are not as likely to discuss uncomfortable sexual experiences or advances made by adults. Molestation of male child victims still occurs, frequently but goes largely undetected. Finklehor's survey, previously cited, confirms this belief, since nearly 10% of collegeage males remembered unwanted childhood sexual experiences occurring before the age of 13 years. Similar to our own experience, as in other large series of recognized victims, males only represent 15% to 18% of the cases. The nature of the relationship is almost always homosexual.

Mother (Caretaker)

The role that the mother "plays" in promoting the sexual abuse of a child has been most described in cases of intrafamily molestation or incest. Incest by definition includes situations where perpetrators may be fathers (biological/step/or adopted), grandfathers, brothers, uncles or first cousins. Although sibling incest is thought to be most common, the incestuous relationship most frequently described is the father of the household and a daughter. The mother is often described as passive, immature and dependent. Profound marital discord is common and the mother fosters the relationship by her

absence. This absence may be a result of alcoholism, chronic illness, psychological reasons, or a result of work or other social obligations (*Table 4*). The daughter often assumes the role of wife and caretaker to maintain the family's distorted equilibrium. The mother knowing, at least suspecting incest, refrains from reporting her husband, fearing his imprisonment and losing his financial support.

In some cases of extra-family molestation, the responsibility of a child's care may have been left to someone outside the family. Certainly the numbers of people who have "access" to children have increased dramatically. In the last two decades, as more mothers are working outside the home, more families rely on people outside the nuclear family to care for the children. Parent substitutes may vary from adolescents, to babysitters, to day-care centers. At times, children are even left inappropriately to supervise care for themselves. None of these situations have been found to be "completely safe" for children. Nearly every week, new reports of child sexual abuse involving even the most respected, well established child care centers surface. Tragically in these situations, even a mother's closest scrutiny could not have likely prevented the sexual encounters experienced by the child until after they have already occurred.

Evaluation and Treatment

For those children suspected of being sexually abused, their evaluation and treatment may be divided into four major areas, requiring a multidisciplinary team approach. The members of that team have been previously defined: initial psychosocial evaluation/support, medical, legal, and long-term emotional support.

Initial Psychosocial Evaluation and Support

The first and most important step to evaluation is the recognition that child sexual abuse has occurred. The health professional making the initial attempt to "validate" sexual abuse through the interview must be knowledgeable about

abuse and skilled in working with young people. The physician, social worker or police investigator who has experience may interview the child on these sensitive issues. General guidelines include:

1,0

al and

r cale

ide the

o care

- 1) Interview the child and mother separately in a neutral setting. The child needs to feel free to state what has happened without fear of retribution or fear of hurting the feelings of the adult. If the young child prefers that another familiar, sympathetic adult be present, this should be allowed.
- 2) Gain credibility with the child. It often helps to say that he/she has talked to other children with similar problems.
- 3) Use the child's vocabulary to identify body parts and sexual activity. "Anatomically correct" dolls are necessary to help the young child adequately describe and depersonalize past events.
- 4) Be aware that more than one interview may be necessary to gain the child's confidence and the entire story. All interviews should be conducted by the same person.
- 5) Include enough information in the initial interview to determine a "safe" home for the child, particularly in cases of incest.

Medical

Medical evaluation should be performed by a physician who is:

- 1) competent in the sensitive issues of child sexual abuse;
- 2) knowledgeable about the appropriate physical exam and laboratory specimens to be collected; and
- 3) willing to testify in court, if required.

The medical exam will:

- 1) determine if any physical injury or infection is present, thus providing supporting evidence;
- 2) determine the appropriate treatment for any injury or disease which may be present; and
- 3) allow the physician the opportunity to provide appropriate reassurance to the child and the family regarding the victim's exam

The medical exam for the child victim

TABLE 6

Medical Examination

A thorough medical history should be obtained

An exam of all parts of the body, especially noting any bruises. Careful documentation of any abrasions of breasts, buttocks should be made.

A genital exam including recto-abdominal exam should be completed with a careful description of genital anatomy regarding

- a Condition of hymenal ring and tissue, noting any disruption as new tears or old slits leaving rounded remnants of tissue
- b Size of vaginal/urethral opening
- Presence of any vaginal*/urethral discharge or foreign body
- d Condition of rectal opening regarding tears or abnormal rectal spasm or dilatation

A search for venereal disease should be complete with

- a Gonorrhea cultures of throat, rectum, vagina (endocervical*)/ urethra.
- b Serology for syphilis
- Viral culture of any suspicious lesions for genital herpes
- d Inspection for venereal warts
- e Wet mount of any vaginal discharge to inspect for trichomonas *

Urinalysis and culture should be obtained

Appropriate forensic specimens should be collected if last assault within past 72-96 hours *

*These specimens should be obtained with speculum exam if female victim postpubertal

is included (*Table 6*). The examiner may gain rapport with the child by conversation during the history taking. The examiner must appear unhurried and show gentleness. The exam should focus on all body parts, not just the genitalia. This also allows one to inspect for any other physical problems such as injuries or bruises. To have the genitalia inspected, young girls are most comfortable with heels together placed near buttocks and knees apart. Most prefer to remain un-

draped in order to see, although some older ones are modest and prefer draping. The majority of the physical exams are normal since most of the sexually abusive behavior involving young children does not cause physical harm or injury. Most exams are not "rape" exams which require an "invasive" speculum exam. The exception will be discussed in the following text.

One should first inspect external genitalia and document carefully any findings. Gently spreading the labia majora, one should make note of structures (Table 6). Cultures for Neisseria gonorrheae (GC) should be obtained from the rectum, the pharnyx and the vagina/ urethra in all cases regardless of the initial history obtained. Vaginal swabs are obtained with long, small-caliber, cottontipped applicators, pre-moistened with normal saline. Since the prepubertal vagina is short and lined with epithelium conducive to bacterial growth, the specimen for gonorrhea may be obtained from the vagina, not the endocervix. In cases of chronic molestation, results of cultures are usually obtained before administering antibiotics unless the child is symptomatic, e.g., vaginal discharge and a gram stain demonstrates gram-negative intracellular diplococci.

Traumatic insertion of a penis or foreign objects can cause serious and lethal vaginal lacerations that require immediate surgical intervention. Any child with genital trauma such as a lacerated hymen or vaginal bleeding must have a careful inspection of the entire vaginal vault and pericervical area with a speculum or another appropriate examining instrument. Also, if penetration or attempted penetration has occurred within the last 72-96 hours, one should obtain specimens for evidence of sperm, acid phosphatase, ABO typing of any sperm and other physical evidence. This may be facilitated by having all the necessary supplies available to do an exam in a separate kit. Frightened, young children cannot tolerate painful speculum exams.

After specimens are obtained, each individual who takes possession of the specimens must document that he/she has

done so. This chain of custody of evidence must be preserved if results are to be admissible as evidence in court. If trauma has occurred, both the necessary inspection and the collection of forensic specimens may be best conducted under a general anesthesic and should be performed by an experienced obstetricsgynecologist. Prophylaxis for infection should be given for an acute assault.

Pubertal/Postpubertal Female Victims

If the female victim is pubertal/ postpubertal and has a history of an assault with penetration or attempted penetration, the GC culture must be an endocervical sample obtained by a speculum exam. In addition, pharyngeal and rectal cultures are obtained for GC along with a wet mount inspection of vaginal secretions for trichomonas. If intercourse has been attempted and the last assault has occurred within the 72-96 hours prior to the exam, specimens for evidence of sperm and acid phosphatase, ABO typing of any sperm and other physical evidence should be collected according to suggested procedures of the local authorities. Prophylaxis for infection should be given and pregnancy prophylaxis should be considered if the assault has occurred in the last 72 hours (Table 6). Pregnancy prophylaxis should be deferred and a pregnancy test should be obtained, if the victim's menstrual history is vague and a history of sexual intercourse is suspected.

Male Victims

The evaluative procedures for assaulted (prepubertal or postpubertal) males is similar except for obviously the collection of a urethral sample for GC (Table 6). This should be collected with a small Calgiswab (a), pre-moistened with normal saline. A urine sample should be collected; white cells in the first few voided ec's usually indicates urethritis rather than cystitis in a male. Careful inspection for rectal trauma should be made with note of any rectal spasm or dilatation. Appropriate smears, swabbings for acid phosphatase, seminal ABO groupings and wet mounts for sperm should be obtained

from oral and rectal areas dependent upon the victim's history and the physician's exam. Other physical evidence should be collected according to procedures of local authorities.

Legal Environment and Support

The physician and social worker are only a part of the multidisciplinary team. After the initial evaluation is concluded, the official agency responsible for that county must be notified within 24 hours, and a complete and legal record of that exam filed. One copy remains usually in the social services department/or with the physician, while the original should be sent to Child Protective Services (CPS). Often there is a 24-hour abuse hotline available for reporting. A phone call reporting the alleged complaint should be made at the time of the evaluation to initiate a prompt investigation. In addition to the official report, the physician should let the family know an investigation will ensue. All reported children and their families should receive a thorough and complete interview by the authorities recounting the events of the sexual abuse. In addition, in cases of intra-family molestation, the Child Protective Services (CPS) agency or police should assist the physician in finding a temporary "safe place" for the victim.

Follow-up

All children should be seen by the physician within one to two weeks after the initial evaluation to ensure proper treatment of any physical findings and to ensure follow-up of laboratory tests. Also, this evaluation helps to see that the proper legal and therapeutic measures have been initiated.

Many issues may need to be addressed both during and after the legal activities. Guilt, fear, depression, anger, and low self-esteem surface following the detection and reporting, and are directly related to the sexual abuse. Longer term follow-up is often necessary to determine the extent of further psychological support of therapy. Long delays in the judicial system can become stressful and emotionally exhausting to the victim and his/her family.

Laboratory Tests

Required laboratory tests include pharyngeal, rectal, and vaginal (endocervical in post-pubertal females)/urethral swabs for Neisseria gonorrhea. These should be directly plated onto Martin-Lewis media or onto transport media and processed immediately. A CO2-enriched environment facilitates growth of gonorrhea; several mechanisms and commercial techniques are available for transporting specimens to the laboratory. The laboratory should be equipped to perform definitive tests to delineate species of Neisseria. Because of medicolegal implications, "presumptive" tests for Neisseria gonorrhea conducted on isolates from throat, rectum, and vagina/urethra of child victims are inadequate. Confirmation with "sugar fermentation" tests are necessary. The identification of GC from a properly collected specimen from the throat, rectum, and vagina/urethra may initiate the investigation of suspected sexual abuse or substantiate a child's allegations.

Pharyngeal GC is usually asymptomatic. The predominant mode of transmission for pharyngeal GC is through fellatio. Since saliva is inhibitory to gonococcus's growth, any other form of oral-genital contact and/or kissing is a very unlikely mechanism of transmission. The organism must be deposited very near pharyngeal tissue.

Rectal GC is also most often asymptomatic. In males, it is acquired through homosexual contact. In both prepubertal and postpubertal females, rectal intercourse may also have occurred and/or infected vaginal/cervical secretions may have "contaminated" the rectal mucosa.

Prepubertal vaginal mucosa is thin, rather atrophic. Predominantly lined with epithelium composed of parabasal cells, the vagina has a neutral to alkaline pH, which promotes bacterial growth. Therefore, a retrograde vaginitis may result when seminal secretions infected with GC are deposited at the opening of the vagina. No evidence of attempted penetration (i.e., injury) need exist for a prepubertal female child to have acquired GC in a sexually abusive manner. The

gonococcus is very sensitive to the environment and it is not acquired from towels, toilet seats, sheets or bath tubs.

The postpubertal female's vagina is lined in stratified squamous epithelial cells. Lining thickened by estrogen stimulation with a lower pH inhibits growth of gonococcus in the vagina. Infected seminal secretions need to be deposited near the endocervix for infection to be acquired. Therefore, penetration should have occurred if GC endocervitis is cultured in a postpubertal female.

The mode of acquiring GC urethritis is most likely oral-genital contact in prepubertal males, while in postpubertal males oral-genital sex, rectal sex and coitus are all possibilities.

Treatment

np.

The current treatment recommendation for GC vaginitis, endocervicitis or urethritis is a single oral dose of amoxicillin 50 mg/kg (max. 3.5 gm) with a single oral dose of probenecid 25 mg/kg (max. 1 gm) given one-half hour before the antibiotic. Alternative treatments include a single IM dose of procaine penicillin 100,000 units/kg (max. 4.8 million units) preceded by a single oral dose of probenecid 25 mg/kg (max. I gm) one-half hour before injection. For patients allergic to penicillin or infected with beta-lactamase producing organisms, a single IM dose of spectinomycin 40 mg/kg (max. 2 gm) should be given.

Most of the recommendations for treatment of pharyngeal GC and rectal GC have been based on experiences in treating adult patients in STD clinics. Pharyngeal treatment recommendations include procaine penicillin (given as previously stated) or oral tetracycline 40 mg/kg per day (max. 2 gm per day) divided into four doses and given for seven days. In 10% of the cases of pharyngeal GC, a positive culture (nonbeta-lactamase producing) persists after adequate treatment with a penicillin. Retreatment with an alternative or even the same regimen of antibiotic will often "cure" the infection. Test of cure cultures are mandatory; many authors suggest three negative cultures. Tetracycline should not be used in children under 12 years of age.

Treatment of rectal GC includes either procaine penicillin or spectinomycin. Reculture is very important.

After an acute assault, antibiotics administered for GC prophylaxis according to the same guidelines as treatment with amoxicillin and prohenecid are used most frequently.

Observation for evidence of other sexually transmitted diseases (STD) must be astute. Acquired syphilis is rarely found in child sexual abuse victims. A screening serology is part of the initial evaluation. This should be repeated in six to eight weeks after initial evaluation only when sexual molestation was the result of an acute assault with penetration. Treatment for early syphilis is a single IM dose of benzathine penicillin G 50,000 units/kg (max. 2.4 million units). This same dose is administered weekly for three consecutive weeks if syphilis has been present more than one year. Alternative drugs for penicillin-allergic patients include: oral erythromycin 30 mg/kg per day (max. 2 gm) given in four divided doses for 15 days. Tetracycline may also be used in a child over the age of 12 years in a dose of 500 mg, four times a day for 15 days. Serologic follow-up is mandatory.

Diagnosis of venereal warts, herpes simplex type II and trichomonas in a young child must make any health professional most suspicious of sexual abuse. Treatment for venereal warts depends on the number and location of warts as well as the age of the child. Podyphyllin is a topical medicine with the properties of an anti-meiotic agent. After application to the warts, podyphyllin must remain on for approximately four hours. These directions should be given clearly and followed closely. Reapplications may be necessary at weekly intervals. Podyphyllin should not be used on warts if located on mucosal surfaces of the vagina, the rectum, or the urethra. Smaller children may inadvertently spread the topical agent to other parts of their body, particularly if the warts are numerous and application has been liberal. If contaminated, eyes are particularly vulnerable to podyphyllin's

damaging effects with keratinization the resulting injury. Cryotherapy (liquid N₂) is considered as an alternative therapy, particularly if the child is older with a few warts on non-mucosal surfaces. If the child is young with many lesions located on mucosal surfaces, electrofulguration under light general anesthetic is the best therapy. Diagnosis of genital herpes simplex type II can only be made with an immunofluorescent antibody test and viral cultures. Treatment is symptomatic only.

Metronidazole (Flagyl) remains the recommended treatment for trichomonas. An oral dose of 10 mg/kg to 30 mg/kg per day (max. 750 mg per day) divided into three doses is given for seven days. An alternative regimen is a single oral dose of 2 gm for those weighing more than 50 kg. Side effects of nausea with vomiting often prohibit the use of this medication in this manner. The use of metronidazole is contraindicated in any patient who may be or is pregnant.

Pregnancy prophylaxis may be offered to post-menarchal girls presenting within 72 hours of an assault which occurred at mid-cycle. Diethylstilbesterol (DES) 25 mg is given twice daily orally for five days or two tablets of Ovral (ethinylestradiol 50 mcg/tab) may be given twice daily for three days. An antiemetic should be prescribed, since nausea or vomiting is a frequent side effect of large doses of estrogen. Potential risks of these drugs to a fetus must be thoroughly explained. The victim must be aware that abortion may be necessary if the drug fails to prevent conception. A pregnancy test should be performed and drug therapy deferred if the patient has been having unprotected intercourse prior to the assault. The victim should revisit her physician within two weeks for a pregnancy test, if bleeding has not occurred post-estrogen therapy.

Summary

To evaluate children who are suspected victims of sexual abuse, the physician first must recognize that the abuse has occurred. Sexually abused children may come to medical attention in a variety of

ways, the least common as an actual complaint of an assault. The child may present with specific complaints such as vaginal/urethral discharge or injury to genitourinary area. Other complaints may be "less-specific" behavioral symptoms as depression and/or anger. In all instances where sexual abuse of children has occurred, the common element is the exposure of a child to inappropriate sexual experiences. Every case requires a careful, thorough investigation as well as a thoughtful, individualized approach. This is only possible where cooperation and communication exists between the medical, social and legal agencies involved.

Physician responsibilities include:

- I) performing a competent exam with appropriate laboratory and forensic tests;
- 2) contacting the local authorities when cases of "suspected" child sexual abuse present, and testifying in cases where prosecution is indicated;
- 3) providing follow-up for the victim with appropriate medical treatment and psychological support; and
- 4) usually referring for longer term therapy, since the sequelae of sexual abuse are often not initially appreciated.

REFERENCES

- Blumberg MI: Sexual abuse of children: Causes, diagnosis and management. Pediatr Ann., 13:753, 1984.
- Branch G, Paxton R: A study of gonococcal infections among infants and children. *Public Health Rep*, 80:347, 1980
- 3. Brant RS: The sexually misused child. *Am J Orthopsychiatry*, 47:80, 1977.
- Committee on Early Childhood, Adoption and Dependent Care of American Academy of Pediatrics: Gonorrhea in prepubertal children. *Pediatrics*, 71:553, 1983.
- Farrell MK, et al: Prepubertal gonorrhea: A multidisciplinary approach. Pediatrics, 67:151, 1981.
- Finkelhor D: Sexually Victimized Children, The Free Press, MacMillan Publishing Company, New York, New York, 1979.
- 7. Ginsburg C: Acquired syphilis in prepubertal children. *Pediatr Infect Dis*, 2:232, 1983.
- 8. Greenburg NH: The epidemiology of childhood sexual abuse. *Pediatr Ann*, 8:289, 1979.
- 9. Groothais J, et al: Pharyngeal gonorrhea in young children. Pediatr Infect Dis, 2:99, 1983.
- Huffman J: Premenarchal vulvo vaginitis. The Gynecology of Childhood and Adolescence, Philadelphia, W.B. Saunders, 1981.
- 11. Mellersh A, *et al*: Inhibition of neisseria gonorrhorea by normal human saliva. *Br*

- I Vener Dis, 55:20, 1979.
- Neinstein LS: Nonsexual transmission of sexually transmitted disease: An infrequent occurrence. *Pediatrics*, 74:67, 1984.
- 13. Oriel J: Natural history of genital warts. *Brit J Vener Dis*, 47:1, 1970.
- Orr DP: Limitations of emergency room evaluations of sexually abused children. Am J Dis Child, 132:873, 1978.
- 15. Orr DP: Management of childhood sexual abuse. *J Fam Pract*, 11 (7):1057, 1980.
- Rimsma ME: Medical evaluation of sexually abused children: A review of 311 cases. *Pediatrics*, 69:8, 1982.
- Rosenfield AA: The clinical management of incest and sexual abuse in children. *JAMA*, 242:1761, 1979.
- Seidel J, et al: Condyloma acuminata as a sign of sexual abuse in children. J of Pediatr, 95:553, 1979.
- Sgroi S: Handbook of Clinical Intervention in Child Sexual Abuse, Lexington Books, Lexington, Massachusetts, 1982.
- White ST, et al: Sexually transmitted diseases in sexually abused children. Pediatrics, 72:16, 1983.
- Wiesner P, et al: Clinical spectrum of pharyngeal gynococcal infection. N Engl J Med, 288:181, 1973.
- 22. Woodling BA: Sexual assault: Rape and molestation. *Clin Obst and Gynecol*, 20:509, 1977.
- Woodling BA: Sexual misuse: Rape, molestation and incest. *Pediatr Clin North Am*, 28:481, 1981.

Announcing... Improved Care for your Asthma and Allergy Patients.

The Deaconess Hospital of Cincinnati Asthma and Allergy Treatment Center.

With the opening of the new Asthma and Allergy Treatment Center (AATC) at the Deaconess Hospital of Cincinnati, comprehensive asthma and allergy care and treatment come to this area. The AATC is a progressive concept, designed to supplement and enhance the treatment of your asthma and allergy patient...a "tool" available for your use.

State of the art technology and highly trained specialist teams. A dedicated, highly-specialized team focuses its attention on every phase of asthma and allergy care. Skilled physicians, combined with a specially-trained nursing and respiratory team, join with state of the art technology to offer a unique system of treatment called "progressive care."

Progressive Care... the best approach available today. Designed to return the patient to optimal day-to-day life, progressive care places the patient at the level of care necessary to relieve and control his or her symptoms.

The only comprehensive program in the Ohio Valley.

The AATC offers total care for asthma; from emergency intervention, through short term hospitalization (less than 24 hours) to inpatient care in a special unit. The Center also provides programs for Exercise Induced Asthma and Rapid Desensitization. It is the only comprehensive treatment program conveniently located right here in the Ohio Valley, in Cincinnati.

The perfect complement to your medical regimen.

Your patient remains your patient. The Deaconess AATC enhances your care. Many doctors find the AATC a valuable solution to improving long-term treatment and care for their asthma and allergy patients.

Call us for more information... 559-2888.

THE DEACONESS HOSPITAL of Cincinnati

Straight Street at Clifton

We care for you.

dh

NMR Physics for Physicians

JAMES H. ELLIS, M.D.¹ FORREST T. MEIERE, Ph D.² Indianapolis

REMENDOUS INTEREST among physicians and the public alike has been generated by the appearance of nuclear magnetic resonance (NMR) as a technique for imaging the human body. A basic understanding of how NMR is able to obtain clinically relevant images is important to those who would use the technique, just as similar information about computed tomography is valuable to the clinician. Although there is considerable impetus to remove the word "nuclear" from "nuclear magnetic resonance imaging" (among other reasons, to remove public apprehension about nuclear energy to which NMR is unrelated), this paper will continue to use that term to emphasize the basic role of the non-radioactive atomic nucleus in NMR imaging.

NMR examines the interaction of matter with electromagnetic forces: Certain atomic nuclei, following stimulation by electromagnetic waves, can release radio waves as they return to their ground state. The basic principles of NMR as applied to determinations of molecular structure were elucidated in the 1940s by independent teams led by Bloch and Purcell, who later shared the Nobel Prize for their discoveries. In studies of molecular structure

ture, diffusion, or chemical reactions, the information-containing radio signal emanates from the sample as a whole. In the 1970s, the possibility of locating in space the origin of NMR signals was recognized. This concept, along with the realization that different normal and pathologic tissues emit different NMR signals, led to the development of imaging devices, which has continued to the present day. The following discussion summarizes, in non-mathematical terms, the basic principles of NMR as they apply to imaging.

Charged particles that are moving generate electromagnetic fields. For example, the electrons moving through the wires of an ordinary electromagnet create a magnetic field (B) (Fig. 1).

Atomic nuclei are composed of charged particles that are spinning and this property of spin makes each of the charged particles act like a tiny bar magnet (*Fig. 2*). Although we usually think of neutrons as having no charge, it is interesting that neutrons as well as protons can act like tiny magnets.

The magnetic fields from a nuclear particle (proton or neutron) can point in any direction. However, if there are an even number of nuclear particles in a nucleus, their fields usually line up in opposite directions and the nucleus as a whole has no net magnetic field (or magnetic moment, as it is called) (Fig. 3), although there are certain exceptions to the rule. On the other hand, nuclei with an odd number of neutrons plus protons must have a magnetic moment. Carbon 13 (isotope of carbon), sodium 23, phosphorus 31, and potassium 39 are among these nuclei. But the most abundant, and also the strongest magnet on an atom by atom basis, is hydrogen, the nucleus of which is a single proton.

Having described the underlying basis for nuclear magnetism, the individual protons and neutrons can recede into the background. The remainder of this discussion focuses on the nucleus as a whole with its net magnetic moment. In short: Some nuclei have magnetic moments, that is, they act like tiny bar magnets. Hydrogen nuclei have this property, and because of their abundance in living tissues and their strong magnetism, they are the nuclei involved in NMR imaging with most current commercial devices. [This is the "nuclear" in "nuclear magnetic resonance imaging".]

In the absence of any external magnetic field, the tiny bar magnet nuclei are oriented at random in three-dimensional space (*Fig. 4*).

In the presence of a strong external magnetic field, the nuclei attempt to line up either parallel or anti-parallel to the imposed field (*Fig. 5*). First, more nuclei line up parallel than anti-parallel because this is the lower energy state. Second, the word "attempt" is appropriate because the magnetic moments do not line up precisely with the external field, but at an angle to the field, and they precess (or wobble, much like a spinning top wobbles under the force of gravity) around the direction of the external field (*Fig. 6*).

For each nuclear species (hydrogen, phosphorus, etc.) the frequency of this wobbling (precession) is directly proportional to the strength of the external magnetic field. When there are multiple nuclei in a volume of matter, they point in parallel or anti-parallel directions, each wobbling with the specific frequency (called the Larmor frequency) of that particular nucleus in that particular strength field (Fig. 7). Since the magnetic moments of anti-parallel nuclei point in the opposite direction of the moments of para-Hel nuclei, their effects tend to cancel. There are slightly more parallel nuclei than anti-parallel, so that the result is a slight excess of magnetic moments pointing in the general direction of the external field, each precessing at the Larmor

Dept. of Radiology, Indiana University Medical Center, Indianapolis, Ind. Dept. of Physics, Indiana University-Purdue University at Indianapolis.

Correspondence: James H. Ellis, M.D., Radiology Service (114), Veterans Administration Medical Center, 2215 Fuller Road, Ann Arbor, Mich. 48105.

GLOSSARY

In keeping with the informal nature of the text, several key terms are explained below in a general sense. More precise definitions may be obtained in Reference

echo time—time from the 90 degree pulse to the *echo* in the *spin echo* pulse sequence; TE.

inversion recovery—a *pulse technique* consisting of a 180 degree pulse followed by a 90 degree pulse after a time *TI*. The entire sequence has duration *TR*.

inversion time—the time between the 180 degree and 90 degree pulses in the *inversion recovery* sequence; TI.

Larmor frequency—the number of revolutions per second that a nucleus undergoes in its *precession* about the direction of a external magnetic field. For a given nuclear species (e.g. hydrogen), the Larmor frequency is determined by the strength of the external magnetic field. If the field strength is doubled, the hydrogen nucleus precesses at twice the speed.

longitudinal relaxation—the process in which nuclei which have been tipped away from the direction of the external magnetic field release their excess energy to the environment and return toward the direction of the external field. TI is a measure of the time for longitudinal relaxation.

macroscopic magnetization vector—the net *magnetic moment* per unit volume of a substance, frequently tissue within a human undergoing imaging. This represents the sum of all the magnetic moments of the individual nuclei in the sample volume.

magnetic moment—a representation of the size and direction of the "magnetic strength" of an object, frequently drawn as an arrow. A bar magnet, for example, has a magnetic moment which points from its south pole to its north pole. Depending on the context, the moment may represent a particle, a single nucleus or a collection of nuclei. A magnetic moment placed in a magnetic field experiences a torque perpendicular to both the moment and the field.

moment—magnetic moment

partial saturation—a pulse sequence consisting of repetitive 90 degree pulses separated by an (adjustable) time TR.

precession—for NMR, the rotation of a magnetic moment about the direction of the magnetic field. Not to be confused with the axis of rotation of the object itself. Precession is a general term which applies in other situations. For example, a spinning top rotates on its own axis, but it may also precess (wobble) around the direction of the force of gravity which is acting on it.

proton density—a measure of proton (i.e., hydrogen, since its nucleus is a single proton) concentration (number of nuclei per unit volume).

pulse—radiowave energy is transmitted as a pulse of a specific duration which, when absorbed by the nuclei, tips them a certain number of degrees (e.g., 90 degree pulse).

relaxation—return of excited nuclei to equilibrium by the release of energy (previously absorbed through *resonance*).

relaxation time—a measure of the rate at which nuclei release their extra energy. Both *longitudinal* and *transverse* relaxation processes occur.

repetition time—the time between the initial *pulse* of a *sequence* and the initial pulse of the next repetition of that sequence. Equivalent to the duration of the sequence; TR.

resonance—the process of energy absorption by a substance or object which is tuned to absorb energy of a specific frequency only; all other frequencies will not affect the substance or object. For example, if one tuning fork is struck in a room full of tuning forks, only those forks tuned to that identical frequency will vibrate (resonate).

saturation recovery—imprecise but widely used term for *partial saturation*.

selective excitation—a method of selecting an imaging plane by exciting only those nuclei in the plane. The magnetic field is adjusted so that only the nuclei in the specific plane of interest are capable of absorbing (and therefore, later releasing) the transmitted energy needed for imaging. See *resonance*, *Larmor frequency*.

sequence—a series of *pulses* which is repeated over and over.

spin-echo—a *pulse sequence* consisting of a 90 degree pulse followed by a 180 degree pulse. The NMR signal decreases between the 90 degree and 180 degree pulse. The 180 degree pulse acts to refocus the signal, which then increases to form an "echo." The time between the 90 degree and the 180 degree pulse is tau, the time from the 90 degree pulse to the echo is *TE* (equals twice tau), and the entire sequence has duration *TR*.

spin-lattice relaxation time—T1 ("Lattice" is the physics term for physical environment.

spin-spin relaxation time—T2.

tau—time between the 90 degree and 180 degree pulse in a *spin-echo sequence*.

TE-echo time.

TI—inversion time.

transverse relaxation—release of energy from excited nuclei by interactions among themselves such that instead of rotating in unison in the x-y plane, they spread out (dephase) and their magnetic moments begin to cancel each other. *T2* is a measure of the time for transverse relaxation.

TR—repetition time.

T1—a time constant measuring longitudinal relaxation.

T2—a time constant measuring *transverse* relaxation.

x-y plane—the plane perpendicular to the direction of the external magnetic field. **z direction**—the direction of the external magnetic field.

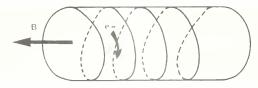


FIGURE 1

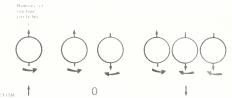
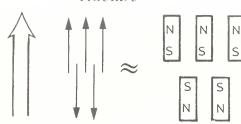
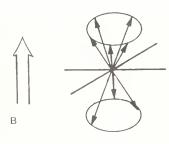


FIGURE 3



EXTERNAL FIELD (B)

FIGURE 5



PARALLEL (MORE)

ANTI-PARALLEL (FEWER)

MANY NUCLE!

FIGURE 7

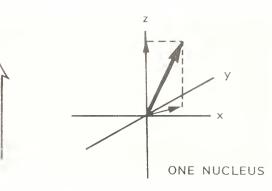


FIGURE 9

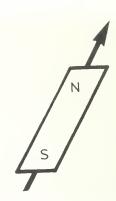


FIGURE 2





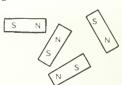
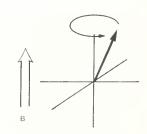


FIGURE 4





ONE NUCLEUS

TOY TOP

FIGURE 6

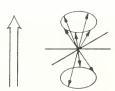
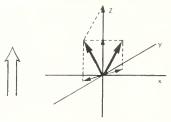






FIGURE 8



MULTIPLE NUCLEI

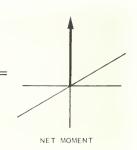


FIGURE 10

frequency (Fig. 8).

The excess nuclei pointing in the parallel direction are only a small fraction (perhaps one in a million) of the total nuclei in the sample. Since there are 1019 hydrogen nuclei per cubic mm of water, even one in a million still give 1013 hydrogen nuclei per cubic mm to contribute to the signal. It is these one-in-amillion nuclei that produce the signal enabling NMR imaging to occur. As one might imagine from this statistic, the NMR signal-to-noise ratio is low, and this is one of the limitations of the technique. Higher field strengths produce a greater excess of nuclei in the parallel direction, and thus provide improved spatial resolution or faster imaging times.

Returning to the wobbling nuclei with their magnetic moments attempting to line up with the external field: Each magnetic moment can be divided into its component parallel to the magnetic field (which we call the z direction), and its component perpendicular to the magnetic field in the x-y plane (Fig. 9).

Since the nuclei are wobbling about the z axis at random, their x-y components point in all directions, with the same number pointing left as right for example, and they cancel each other. However, the components pointing in the z direction add to each other to form a net magnetic moment (*Fig. 10*). This is called macroscopic magnetization vector in the ACR Glossary (Ref. 1).

In summary: A sample of material placed in a strong magnetic field will have a net magnetic moment parallel to the field (i.e., in the z direction) and no magnetic moment perpendicular to the field (i.e., in the x-y plane). For a given field strength (B), the magnitude of this moment depends on the number of nuclei in the sample. [This is the "magnetic" in "nuclear magnetic resonance imaging."]

At this point, the small amount of nuclear magnetism pointing in the z direction is unchanging and cannot be measured. If, however, the net magnetic moment in the z direction is tipped into the x-y plane by giving it extra energy, it will rotate (in the x-y plane) about the z axis at the Larmor frequency, just like in-

dividual nuclei do. This rotation produces a changing magnetic field in the x-y plane, equivalent to a radio wave, which can induce a voltage in a nearby coil of wire (the NMR antenna). This voltage can be detected by sensitive electronics as the NMR signal.

How is this extra energy given to the nuclei to tip them into the x-y plane? As discussed, the nuclei in the external magnetic field are wobbling around the direction of magnetism with a specific frequency of precession. If a radio wave with this frequency is transmitted into the area, it gives the nuclei extra energy, energy which tilts the magnetic moment. This is analogous to a child on a swing: One must push the child at the same point in each swing cycle (i.e., at a specific frequency) in order to give him more energy; pushes not timed to this cycle will not help the swinging. Likewise, one can give energy to the precessing nuclei only by bombarding them with a radio wave of the correct frequency. This process is called resonance. The longer the radio wave is transmitted, the more energy is absorbed, and the further the magnetic moment is tipped (Fig. 11).

Two commonly used radio wave pulse durations provide a 90° tip into the x-y plane (90° pulse) or a 180° inversion of the net magnetic moment (180° pulse).

In summary: By stimulating nuclei with a radio wave tuned to their frequency of precession [the "resonance" in "nuclear magnetic resonance imaging"], the net magnetic moment can be tipped into the x-y plane, producing an NMR signal capable of detection.

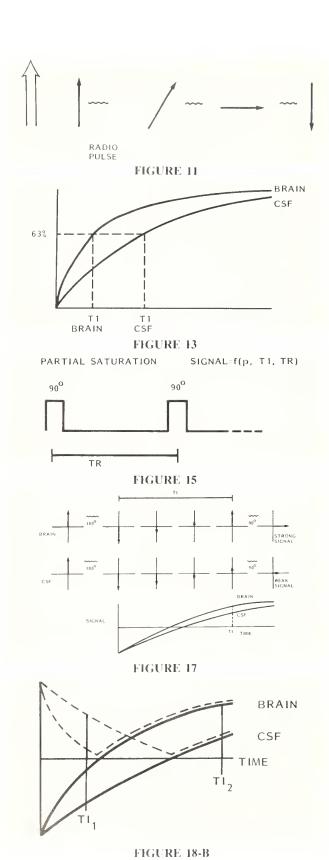
At this point, one could simply measure the strength of the signal in the x-y plane and have a measure of proton density. Proton density images, however, do not show much contrast among tissues. To visualize increased contrast among tissue, one must measure (and image) the rate at which the nuclei return to their relaxed state following their stimulation by transmitted radio waves, that is, one must evaluate the *relaxation times* of nuclei. NMR is not limited, as radiography is, to the imaging of a single property of matter (differential attenuation of x-rays in

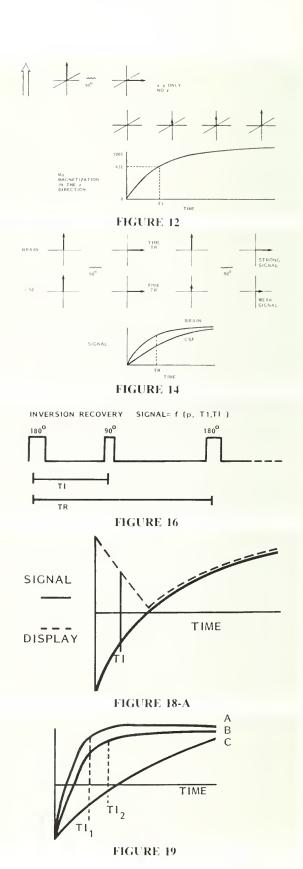
the case of radiography). Rather, NMR can image various (and infinite) combinations of three basic properties of matter and its environment: proton density and two relaxation rates characterized by time constants T1 and T2 (discussed more fully below).

Recall that the nuclear net magnetic moment has absorbed energy from the radio wave pulse, and in so doing has been tipped into the x-y plane. Once the radio wave is turned off, the magnetic moment does not instantly return to the z direction. Rather, it releases its energy back to the environment over time. Two simultaneous processes occur to account for this energy release.

The first process restores magnetization into the z direction, frequently in an exponential manner as shown in Fig. 12. With time, there is progressive increase in the magnetism in the z direction until eventually the nuclei have released all of their excess energy and have returned to their totally relaxed state. Exponential processes can be characterized by the time that it takes for them to be 63% complete. For the return of magnetization into the z direction, the time taken for the magnetization to return to 63% of its original value is called T1. T1 is a rate constant similar to the rate constants used in describing radioactive decay processes. As seen in Fig. 13, different tissues have different rates of relaxation, and therefore different T1's, enabling images which distinguish among different tissues. When compared to cerebrospinal fluid (CSF), brain returns to its original magnetization much faster and therefore has a shorter T1 relaxation time. T1 is called the longitudinal relaxation time because the z direction is considered the longitudinal direction of magnetization. T1 is also called the spin-lattice relaxation time because the excess energy dissipated by the excited nuclei is being given up to the lattice, which is the physics term for the environment within which the nuclei find themselves.

In the example shown in Fig. 12, the magnetism is increasing in the z direction. However, magnetism in the z direction cannot be measured: Since the z compo-





nent of magnetism is not precessing, it does not produce a radio-like signal. The NMR antenna can only receive signals from moments in the x-y plane, which do precess. How then can the different T1's among tissues influence tissue contrast?

This problem is solved by creating an NMR experiment in which more than one radio wave pulse is given to the sample. This is illustrated in Fig. 14. At the conclusion of the first 90° pulse, both brain and CSF have their vectors of magnetization tipped into the x-y plane, and both are approximately the same size due to similar proton densities between brain and CSF. After some time, calling it TR (repetition time), there will be a partial return of magnetization in the z direction. This will be greater for brain than CSF, as the T1 longitudinal relaxation time of brain is shorter than CSF. If another 90° pulse is then transmitted, the magnetic moments will again be tipped into the xy plane, but now the signal from brain will be larger than that from CSF because the initial magnetization in the z direction is greater for brain than for CSF. Therefore, repetitive 90° pulses, spaced apart an appropriate length of time, can increase tissue contrast by giving us images dependent on T1 as well as one proton density.

The choice of TR is important: If TR is too short, then the return to z direction magnetization for various tissues will be just under way, the next 90° pulse will tip multiple small magnetic moments into the x-y plane, and all tissues will give a small signal. Similarly, if TR is too long, then the net magnetic moments of all tissues will have returned to their original amount before the next 90° pulse, and the signal in the x-y plane will reflect proton density, which is a poor discriminator among various tissues. Repetitive 90° pulses, separated by a time TR, define the pulse sequence known as partial saturation (also commonly called saturation recovery) (Fig. 15) in which the signal strength of various tissues is a function of the proton density of the tissues, the T1 of the tissue, and the pulse sequence repetition time (TR). (Magnetic field strength, temperature, and movement

such as flowing blood also influence signal strength.)

Since T1 is often a better discriminator among tissues than proton density, it would be useful to have a pulse sequence that enhances the influence of T1 on signal strength. This can be accomplished by utilizing the pulse sequence known as inversion recovery (Fig. 16). The results of this pulse sequence are shown in Fig. 17. The first 180° pulse inverts the direction of magnetization so that the net magnetic moments of the tissues are pointing opposite to that of the external magnetic field. At a rate characterized by its own T1, the net magnetic moment of each tissue slowly returns toward its original magnitude and direction. However, this cannot be measured as the magnetization is not in the x-y plane. If after an appropriate length of time T1 (inversion time; note that Tl is not Tl), a 90° pulse is transmitted, then the net magnetic moments are tilted into the x-y plane where they can be measured. T1 is chosen such that there has been sufficient time that the magnetic moment of one tissue has had time to get ahead of the other, but not so long that the magnetizations of both tissues have returned to their original magnitude. After the measurement in the x-y plane, the magnetic moments in the z direction are allowed to recover fully (or nearly fully) before the next 180°-90° sequence.

The choice of T1 is important to assure a good tissue contrast. "Negative" signals, or signals from magnetic moments in the negative z direction at the time of the 90° measurement pulse, are often displayed as positive signals (depending on the specific imaging device) (Fig. 18-A). This may lead to a reversal in the relative signal strengths between different tissues depending on T1 and the relevant T1's (Fig. 18-B). One must also recognize that the optimum choice of TI to separate one tissue from another may not be the optimum choice to separate these tissues from a third, as shown in Fig. 19. In NMR imaging experiments, T1 can be altered as desired. This provides a strength of NMR imaging in that various choices of T1 can be made to enhance the recognition of pathology. However, it also poses a problem, as the best choice of TI is difficult to predict and the number of images that one can obtain is limited by time and patient cooperation.

As mentioned, there are two processes by which excited nuclei relax. In addition to longitudinal relaxation, there is also relaxation within the x-y plane known as transverse relaxation. Again, this process is frequently exponential and can be characterized by a time constant called T2, the transverse relaxation time. T2 is also called the spin-spin relaxation time because the important interactions are with other spinning nuclei.

Transverse relaxation occurs when the precessing nuclei are influenced by small nonhomogeneities in the magnetic field. These arise in two ways. First, there are intrinsic small variations in the field created by the imaging magnet. Second, the small magnetic fields created by the individual nuclear "bar magnets" interact, creating local nonhomogeneities in the magnetic field.

Initially, after a 90° pulse, all nuclei are precessing together (in phase) in the x-y plane. But the nonhomogeneities described above result in some nuclei seeing a stronger magnetic field than others. As previously mentioned, the frequency of precession is directly proportional to the strength of the magnetic field. Therefore, in a nonhomogeneous field, some nuclei will precess slightly faster than others and will begin to get ahead of the other nuclei in the rotation (precession) in the x-y plane as shown in Fig. 20. As this occurs, the net magnetic moment in the x-y plane is progressively reduced. If the process continues long enough, eventually the xy components of the magnetic moments will be distributed randomly in the x-y plane, canceling each other out and resulting in no net magnetic moment in the x-y plane.

As with the T1 relaxation process, the T2 relaxation process also differs among various tissues. If one can measure (and thereby image) the rates of relaxation due to the transverse relaxation process, one can obtain another measurement that dis-

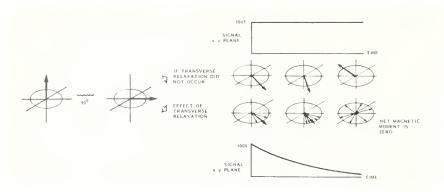


FIGURE 20

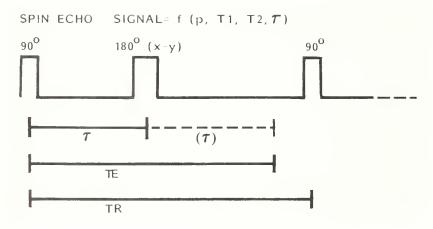


FIGURE 21

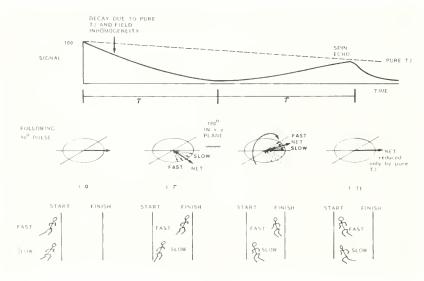


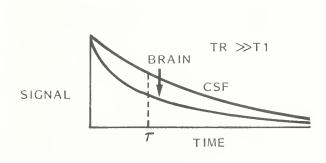
FIGURE 22

tinguishes among various tissues. One would like to measure the relaxation due only to properties of the nuclei (intrinsic to the tissue) rather than any effect of the external magnetic field nonhomogeneity.

The imaging of T2 times is accomplished by using the spin echo pulse sequence (Fig. 21) in which a 90° pulse is followed after a time tau by a 180° pulse. This has the effect shown in Fig. 22. At time zero following the 90° pulse, the entire net magnetic moment is tilted into the x-y plane. With time, this moment precesses, and begins to shrink as the various individual nuclear magnetic moments that make up the net magnetic moment get out of phase with each other. After some time tau, a special 180° pulse in the x-v plane is transmitted. This pulse is designed to flip the individual magnetic moments into their mirror image positions within the x-y plane in which the fast moving moments are behind the slow moving moments. After another time tau, the fast moments have caught up with the slow moments and the signal has nearly regained its original magnitude in the form of an echo, the so-called spin echo. The time from the original 90° pulse to the echo is two times tau, and is called TE (echo time).

The action of the individual moments can be better understood by considering an analogy to a foot race in which some of the runners are faster than others. At the beginning, all of the runners are lined up at the starting line. At some time after the race has begun, the fast runners will be leading the slow runners. If at this time, the runners reverse direction, the fast runner will catch up to the slow runner just as both return to the starting line.

It turns out that the dephasing caused by the external magnetic field nonhomogeneity is reversible through the use of the 180° pulse, whereas the dephasing caused by the nuclear spin interactions is not. The mirror image reversal eliminates the effect of the external magnetic field nonhomogeneity while retaining the effects of the pure T2 interactions. By comparing the initial signal with that obtained through the spin echo, a measurement of the relaxation time due to pure nuclear



 $TR \sim T1$ BRAIN

CSF

Ta

Tb

TIME

FIGURE 23-A

FIGURE 23-B

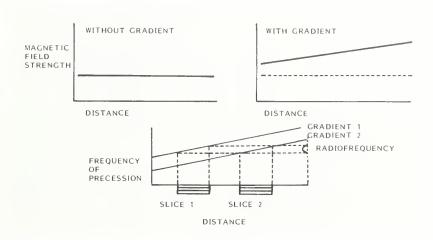


FIGURE 24

spin interaction (T2) can be obtained via computer manipulation of data. However, for spin echo images, the amplitude of spin echo is the method used to create the image. This varies with the choice of tau (or TE) as shown in *Fig. 23*, but again differs among tissues.

The choice of tau is important in optimizing tissue differentiation. Fig. 23-A shows the variation in signal assuming that the repetition rate (TR) of the spin echo pulse sequence (the time between successive 90° pulses) is long, so long that longitudinal relaxation (T1) has completely occurred. In general, to obtain reasonably short imaging times this is not the case. When the repetition time is of the same general magnitude as the T1 relaxation time, there is a contribution to the signal strength by the T1 component of

relaxation, just as in partial saturation. In this case, as shown in *Fig. 23-B*, the initial amplitudes of the signals differ among tissues, and their rate of decline also is different. With short tau, the signal strength from brain exceeds that of CSF, while a longer tau gives a stronger signal from CSF than brain.

This is a new feature when compared to the usual experience in diagnostic radiology in which the relative densities of tissues are constant, brain always being more dense (more attenuating) than CSF, for example. With NMR the relationship of signal strength among tissues is not always constant as shown in this diagram. Despite this potential source of confusion, spin echo images are considered valuable due to their T2 component. Some studies have suggested that T2

may be a more sensitive parameter than T1 or proton density in the differentiation of tissues and the recognition of pathology.

This discussion has now covered the action of certain spinning nuclei in magnetic fields, the stimulation of these nuclei with radio waves, and the reception of a radio signal from these nuclei as they relax. Not yet explained is how data can be obtained from a single slice of tissue at a time, enabling cross-sectional imaging. Although there are several ways to accomplish slice localization, one of the most straightforward is that of selective excitation.

In this process a linearly increasing magnetic field is superimposed upon the uniform magnetic field created by the large NMR magnet (Fig. 24). With the addition of the magnetic gradient field, the field strength varies with location. Since the frequency of precession is directly proportional to field strength, there is a correspondence between location and the frequency of precession. With proper tuning of a radio wave, only those nuclei subjected to the appropriate magnetic field strength will be excited. Only the excited nuclei are able to give off a radio signal which can be used to construct the cross sectional image. By changing the gradient, different slices may be localized within the bore of the magnet.

Information received from these excited slices can be operated upon through Fourier transformation or filtered back projection, methods of reconstruction which are familiar from CT scanning.

[This or other methods of slice selection, along with the choice of pulse sequences, provides the "imaging" in "nuclear magnetic resonance imaging".] It should be mentioned that through advanced techniques, reconstruction can be extended to the third dimension enabling an entire volume to be reconstructed rather than just a slice. These techniques are beyond the scope of this introduction.

A final subject is the "flow phenomenon" seen in NMR imaging, in which flowing blood does not have the same signal that it would if it were stationary; indeed, flowing blood frequently has a signal far different from all other tissues. This is helpful in recognizing vascular structures without the aid of intravenous contrast, as is often necessary with CT. The signal difference arises because new nuclei enter the scan plane and contribute to the signal although they have not been exposed to the whole pulse sequence.

For example, in partial saturation, the nuclei entering in mid-pulse are not recovering their magnetization from a previous 90° pulse, but instead are unexposed to previous radio pulses and are at full magnetization in the z direction. Thus, the next 90° pulse tips a large vector into the x-y plane and the resulting signal is high. Flowing blood tends to be bright in partial saturation images.

In spin echo imaging, the situation is more complex. Nuclei entering between the 180° and 90° have full magnetization,

the 90° pulse tips a large vector into the x-y plane, and the signal is increased. However, nuclei which enter the slice between the 90° and 180° pulse were not exposed to the 90° pulse. They have full magnetization in the z direction, no component in the x-y plane, and contribute no signal at all. Depending on the timing parameters of the pulse sequence, the rate of flow, and the angle the vessel makes

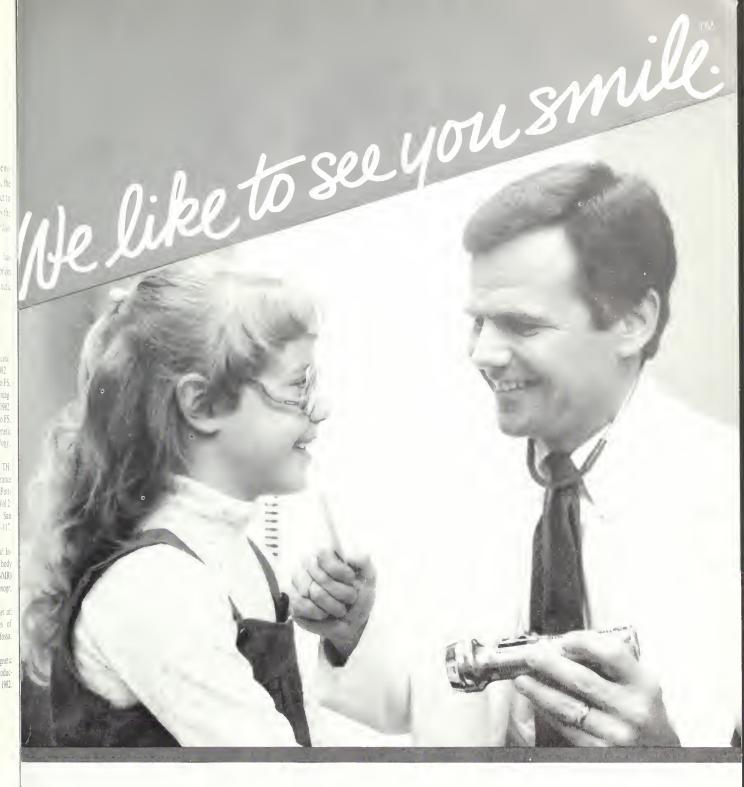
with the scan plane, the signal may be increased or decreased. In gated studies, the timing of the gated image with respect to systole is important, as this determines the rate of blood flow in the pulsatile cardiovascular system.

In conclusion, this discussion has presented a non-mathematical description of the basic principles of nuclear magnetic resonance imaging.

REFERENCES

- Axel L, Margulis AR, Meaney TF, eds: Glossary of NMR terms. Chicago: American College of Radiology, 1983.
- Bradley W, Tosteson H: Basic physics of NMR. In: Kaufman L, Crooks L, Margulis R, eds. Nuclear magnetic resonance imaging in medicine. New York: Igaku-Shoin Ltd, 11-29, 1981.
- Crooks LE: Overview of NMR imaging techniques. *In*: Kaufman L, Crooks L, Margulis R, eds. Nuclear magnetic resonance imaging in medicine. New York: Igaku-Shoin Ltd, 30-51, 1981.
- Crooks LE, Ortendahl DA, Kaufman L, et al: Clinical efficiency of nuclear magnetic resonance imaging. Radiology, 146:123-128, 1983.
- 5. Fullerton GD: Basic concepts for nuclear magnetic resonance imaging. *Magnetic Resonance Imaging*, 1:39-55, 1982.
- 6. James AE, Partain CL, Holland GN, *et al*: Nuclear magnetic resonance imaging: The current state. *AJR*, 138:201-210, 1982
- Mitchell MR, Partain CL, Price RR, Karstaedt N: NMR: State of the art in medical imaging. Applied Radiology, 11(4):19-25, 1982.

- 8. Pykett II: NMR imaging in medicine. *Scientific American*, 246:78-88, 1982.
- Pykett IL, Hinshaw WS, Buonanno FS, et al: Physical principles of NMR imaging. Curr Prob Cancer, 7(3):37-49, 1982.
- Pykett IL, Newhouse JH, Buonanno FS, et al: Principles of nuclear magnetic resonance imaging. Radiology, 143:157-168, 1982.
- Wehrli FW, MacFall JR, Newton TH: Parameters determining the appearance of NMR images. *In*: Newton TH, Potts DG, eds. Modern neuroradiology. Vol 2: Advanced imaging techniques. San Anselmo CA: Clavadel Press, 81-117, 1983.
- 12. Young IR, Bailes DR, Burl M, et al: Initial clinical evaluation of a whole body nuclear magnetic resonance (NMR) tomograph. J Comput Assist Tomogr, 6:1-18, 1982.
- Young IR, Burl M, Clarke GJ, et al: Magnetic resonance properties of hydrogen: Imaging the posterior fossa. AJR, 137:895-901, 1981.
- Zermeno, A: The nuclear magnetic resonance phenomenon: An introduction. Curr Prob Cancer, 7(3):4-19, 1982.



As a doctor, there's nothing more important to you than your patient's health. There's nothing more important to Hook's, either. We care about people just like you do. And like you, we're serious about providing the very best health care possible.

Yes, there are times in both our professions when the days are too long, and the nights too short. But, there's one thing that makes it all worth while. That's the smile on a healthy, happy face.

Seeing that smile takes a lot of hard work and dedication. Often it takes a partnership between physician and pharmacist. At Hook's Dependable Drug Stores, we try very hard to make sure we show your patients the same care and concern you show them. We hope that pleases you. We like to see you smile.



Continuous Monitoring of Blood Gases in the Intensive Care Unit and Operating Room

Part 1: Non-Invasive Monitoring of Oxygenation

Critical Care Medicine

DAVID COOK, M.D. Indianapolis

Physiologic processes to support in a critical care unit is respiration. Failure to provide tissues with adequate oxygen to support normal cell metabolism is the proximate cause of mortality in most disease processes and of morbidity in many.

In addition, the more important or unstable a physiologic function, the more frequently it is desirable to monitor the status of that function. The ultimate in 'frequent following' is continuous monitoring. Therefore, continuous monitoring of respiration is a useful tool in the management of critically ill patients.

Respiration and breathing are often considered to be synonymous. In physiologic terms, however, breathing (ventilation) is only one-third of the story. Respiration may be viewed as occurring in three interdependent phases—ventilation, circulation and tissue respiration—with O₂ and CO₄ exchanged or transported in each phase. Those instruments available to monitor each phase will be discussed in this and a subsequent publication in this series.

The first aspect of respiration, ventilation, is the "common sense" view of

The author, a pulmonologist, is Director, Dept. of Respiratory Care, Methodist Hospital of Indiana, Indianapolis.

respiration in which gas moves into the lung and pulmonary capillary blood is "arterialized" through CO₂ excretion into the atmosphere and O₂ uptake from the alveolus. A large amount of useful information may be gained from monitoring the mechanics of this ventilation process, e.g., respiratory rate and, at least in intubated patients, tidal volumes and ventilation pressures with derivation of static and dynamic compliance. This article, however, will not explore that part of respiration but will limit its scope to non-invasive monitoring of oxygenation.

Arterial O₂ may be reported in two ways: partial pressure of oxygen or oxyhemoglobin saturation. Either measurement can be estimated non-invasively.

Continuous Monitoring of Arterial PO₂

One method for continuous estimation of arterial PO₂ (PaO₂) is with a transcutaneous O₂ (TC pO₂) monitor. The sensing device applied to the skin is a miniatured Clark O₂ electrode, no different in basic design than the electrode in a blood gas lab's bench instrument. The electrode is applied with a double-faced "O-ring" to exclude air and contains an internal heating element to warm the underlying skin. Warming increases local perfusion and changes the O₂ diffusion characteristics of the lipid components of the skin.

The PO₂ value thus obtained is not arterial PO₂ although it usually has a recognizable relationship with PaO₂. TC PO₂ is the PO₂ of an artificially warmed tissue and is the result of complex interactions among PaO₂, systemic and regional perfusion, and characteristics or position

of the skin to which the electrode is applied. The TC PO, monitor has its greatest utility in neonates wherein TC PO2 measurements are superior to O saturation techniques in detecting a high PaO2 which may cause serious toxicity (retrolental fibroplasia). The skin of neonates is thin and fairly uniform and premature infants are usually treated in "incubator" environments which ensure a warm, constant temperature thus preventing temperature-related changes in blood flow to the skin. These factors minimize many of the technical problems associated with TC PO₂ measurements in this patient group where high oxygen levels are of clinical importance.

In adults skin variability and changes in local blood flow yield TC PO₂ data which may leave the clinician scratching his head as often as providing a useful management tool. During anesthesia, drug induced changes in vascular tone may further complicate interpretation of data. Also, some electrode membrane systems partially cross-react with Halothane to yield falsely high values.

There is a way, however, to apply noninvasive miniatured O₂ electrode technology more reliably in adults: conjunctival PO₂ (Tcj PO₂) monitoring. The cornea has a very low metabolic energy requirement, commensurate with the fact that the cornea must be avascular in order to maintain its optical properties. The O₂ supply to the cornea during waking hours comes from direct diffusion from the air. During sleeping hours, PO₂ for the cornea is supplied by the palpebral conjunctiva.

To meet the needs of the cornea, the scleral surface of the eyelid has a rich,

superficial vascular bed, supplying much more O₂ than needed for its own energy requirements. A miniatured O₂ electrode applied to the palpebral conjunctiva need not be heated, therefore, to increase local blood flow or increase diffusability. Thus, one of the three determinants of TC PO₂, skin properties, is eliminated leaving Tcj PO₂ dependent upon PaO₂ and blood flow.

Regional alterations in blood flow are uncommon since conjunctival flow is based on the internal carotid artery. A "normal" Tcj PO₂ value therefore insures adequacy of systemic oxygen delivery. In the absence of hypothermia, a low Tcj PO₂ implies either low cardiac ouput or low PaO₂ (or both). Hypothermia, either regional or systemic, does lower Tcj PO₂, both by lowering flow and by actually lowering PaO₂ (a blood sample of given O₂ content increases O₂ Hgb saturation and lowers PO₂ as the temperature falls).

In the absence of hypothermia or low cardiac output, the Tcj PO₂ value will be between 40 and 69% of the PaO₂ and as PaO₂ changes, the Tcj PO₂ will change proportionally with a correlation coefficient of about 0.90. In the absence of a temperature change, a drop in Tcj PO₂ should therefore prompt assessment of blood gases and hemodynamics. For obvious reasons, this monitor may not be well tolerated in conscious patients. However, it is easily applied during anesthesia and for fairly short term use (days) in unconscious intensive care unit patients.

Continuous Measurement of O₂ Hgb. Saturation

n n

a der

our

J. the

A device that is more practical for intensive care unit patients is the oximeter. Co-oximetry is a laboratory technique for determining the relative concentrations of various forms of hemoglobin (oxy-Hgb. carboxy-Hgb. Meth-Hgb., etc.) in blood. Different forms of hemoglobin are distinguished by their patterns of absorption of light of differing wave lengths. A blood sample is thus analyzed by a spectrophotometric technique to yield the percentage of oxy-hemoglobin (% O₂ Hgb.) saturation. To utilize this technique in vivo requires an easily accessible, thin,

vascular tissue which permits passage of light and contains adequate amounts of arterial blood. The ear meets these criteria well.

Ear oximetry has been available since the 1950s, but clinically practical instruments were not available until Hewlett-Packard introduced their instrument about a decade ago. The Hewlett-Packard units, however, are not well suited for intensive care unit use because of their fragility, bulk, need for warming of the ear above body temperature, and difficulty in stabilization.

A third generation ear oximeter is available which utilizes an ingenious pulse phlethysomographic technology. A small probe, resembling a "clip-on" earring is placed on the pinna or lobe of the ear. One side of the clip contains two light emitting diodes, the other photo sensors. The wave length specific light transmission during cardiac diastole is determined by tissue thickness, skin pigmentation, and other biologic pigments (bilirubin, etc.) as well as hemoglobin and is taken as "background" by the instrument's microprocessor. When cardiac systole occurs, the capillary pulse is sensed as increased hemoglobin content with the difference between diastole and systole being due solely to arterial hemoglobin. The saturation is thus calculated from the signal change during each heartbeat.

These instruments are reasonably rugged and reliable and are relatively inexpensive. Correlation coefficients with bench co-oximeters (above 65% sat.) are about 0.95 without any systematic difference in values. Ear oximeters are not designed to account for carboxy-hemoglobin and systematically over-estimate O₂ hemoglobin saturation in carbonmonoxide poisoned patients (e.g., smokers).

Obviously, the potential sources for error for an "in vivo lab test" such as this are greater than for a routine lab analysis, so the data must be taken with a somewhat larger clinical grain of salt. Nonetheless, used in an appropriate clinical setting, oximetry may reduce the requirement for blood gas analysis appreciably and thus reduce cost while

simultaneously allowing a higher level of patient care.

Therefore, with either O₂ electrode or oximetry methods clinically significant data concerning the patient's status can be obtained quickly, painlessly, and noninvasively. With the added advantage of having such information available continuously, changes in the patient's condition can be detected early and further appropriate diagnostic or therapeutic interventions pursued.

ADDITIONAL READING

- Beran A: Cutaneous blood flow and its relationship to transcutaneous Oy/CO₂ measurements. Critical Care Medicine, 9 (10):736-41, 1981.
- Burki NK: Noninvasive monitoring of arterial blood gases. *Chest*, 83:666-670, 1983.
- 3. Douglas J: Accuracy, sensitivity to carboxyhemoglobin, and speed of response of the Hewlett-Packard 47201A ear oximeter. *American Review of Respiratory Disease*, 119:311-313, 1979.
- 4. Eberhard P: Cutaneous blood gas monitoring in the adult. *Critical Care Medicine*, 9 (10):702-705, 1981.
- Huch A: Continuous transcutaneous oxygen tension measured with a heated electrode. Scand Journal of Clinical Laboratory Investigation, 31:269-275, 1973
- Huch R: Transcutaneous measurement of blood PO₂ (tc PO₂)—method and application in perinatal medicine. *J Perinat Med*, 1:183-191, 1973.
- 7. Kruegg A: Non-invasive estimation of arterial oxygenation in newborn infants. *Journal of Pediatrics*, 93:275-278, 1978.
- 8. Lubbers D: Theoretical basis of the transcutaneous blood gas measurements. *Critical Care Medicine*, 9 (10):702-705, 1981.
- 9. Rebuck AS: The accuracy and response characteristics of a simplified ear oximeter. *Chest*, 83:860-864, 1983.
- Severinghaus J: Transcutaneous blood gas analysis. Respiratory Care, 27 (2):152-159, 1982.
- Tremper K: Effects of hypoxia and shock on transcutaneous PO₂ values in dogs. Critical Care Medicine, 7 (12):526-531, 1979.
- 12. Tremper K: Transcutaneous oxygen monitoring of critically ill adults, with and without low flow shock. *Critical Care Medicine*, 9 (10):706-709, 1981.
- Yelderman M: Evaluation of pulse oximetry. Anesthesiology, 59:349-352, 1983

Perspectives in Small Bowel Imaging

DEAN D. T. MAGLINTE, M.D. Indianapolis

IAGNOSTIC TECHNIQUES to examine the small bowel have shown little progress in recent decades. The advent of more versatile endoscopes and skilled endoscopists has brought to light the limitations of the upper gastrointestinal series (GI) and the barium enema, but this does not yet apply to the small bowel. Although small bowel endoscopes exist, they are few and have limited clinical application. Even with the advances made by ultrasound, computed tomography, and nuclear magnetic resonance, clinical imaging of the small bowel still depends upon barium contrast examination.

In many medical centers in other countries, the follow-through or progress meal has been largely replaced by enteroclysis. Unfortunately, this is not the situation in the United States. Enteroclysis or the intubation infusion method is an underutilized method of examining the small bowel in this country. This might be in part related to the clinician's lack of understanding of the inherent limitations of the small bowel follow-through and the radiologist's unwillingness to adopt a more involved procedure.

The author is Chief of Gastrointestinal Radiology, Methodist Hospital of Indiana, and Clinical Associate Professor of Radiology, Indiana University School of Medicine, Indianapolis.

Presented in part at the "Abdominal Imaging and the Gastrointestinal Tract" course sponsored by the Dept. of Radiology, Indiana University School of Medicine, May 15-17, 1984, Holiday Inn North, Indianapolis.

Correspondence, Dept. of Radiology, Methodist Hospital of Indiana, P.O. Box 1367, Indianapolis, Ind. 46202

The mesenteric small intestine is the most difficult segment of the gastrointestinal tract to evaluate radiologically. When a small bowel examination is requested, usually in conjunction with an upper GI series, the radiologist performs the upper GI examination and then additional amounts of barium are given for the small bowel examination. Radiographs are routinely obtained every 15 to 20 minutes for the first hour and then at further intervals until the right side of the colon is reached.

These radiographs are usually monitored casually by the radiologist who performed the upper GI examination. When the right side of the colon is reached, spot films of the terminal ileum are obtained. When one considers certain anatomic and physiologic peculiarities related to the small bowel, it becomes clear that small or early disease processes cannot be demonstrated nor excluded in this way.

Because of the restricted space of the peritoneal cavity, small bowel loops normally overlap and each segment cannot be evaluated unless *compression* is employed to separate loops from one another. The evaluation of mucosal surface detail depends on the study of the fold pattern which varies with the degree of *distention*. With the insufficient luminal distention frequently seen in follow-through examination, circular folds are not straightened and the fold pattern cannot be measured and assessed.

The variability of transit time through the small bowel renders the serial overhead examination unreliable. Administration of medications to accelerate transit will shorten the examination but reduces the lumen diameter, precluding satisfactory assessment of the fold pattern. In spite of these limitations, the conventional small bowel follow-through is still frequently requested and performed

when disease is suspected.

The follow-through examination can be made more small bowel "dedicated" by using larger amounts of dilute barium and more frequent fluoroscopy with compression films. The disadvantages are the inadequate lumen distention achieved, the poor demonstration of the fold pattern, and the logistic problems related to intermittent fluoroscopy.

Unfortunately, some radiologists and clinicians are reluctant to admit the superiority of enteroclysis over the conventional examination and tend to ignore the available evidence.6,7 Examples of lesions missed by the conventional examination but diagnosed at laparotomy are common knowledge among surgeons. This is recorded in many publications.3,8-13,18 Were it not for the fact that small bowel abnormality is infrequent, missed lesions would be embarrassingly common. 13,14 While most reported evaluations have been retrospective with observer bias difficult to control, there is no evidence in the literature to point to the conventional examination as the more accurate method.

In the evaluation of inflammatory bowel disease, 10 partial small bowel obstruction, 15,18 unexplained anemia, 16 and the detection of Meckel's diverticula, 4 there are data provided in the literature to support the intubation method as the more accurate form of examination. For these reasons, an enteroclysis ought to be the method of choice for examination of the small bowel. Only if the patient refuses intubation or if intubation is not possible, then a "dedicated" small bowel follow-through should be the alternative method.

Enteroclysis suffers from the disadvantage of requiring intubation. The small size of the tube (12F-14F) and the ease with which it can be positioned into the distal duodenum or proximal jejunum make this an insignificant problem in our

practice. The whole examination can be done in 15 to 30 minutes compared to the conventional method which may take hours and occasionally needs completion the following day.

The enteroclysis, however, demands the continued presence of a radiologist. Another significant consideration is the radiation exposure during the examination. In a recent series of eight consecutive patients, using our technique of enteroclysis,17 we have averaged an entrance dose of 16,000 millirads. In comparison, the small bowel meal uses only 2,800 millirads. The combined average radiation dose of an upper G1 series and a followthrough is approximately 12,000 millirads. Undoubtedly, the radiation exposure to enteroclysis is higher but if the conventional follow-through fails to show pathology, and this is not an infrequent result, radiation to the patient has been wasted because lesions cannot be ruled out by this method. On the other hand, the reliability of a normal enteroclysis has been shown to be high.¹²

Cost effective medical practice demands a more precise examination technique. Enteroclysis is a more accurate examination, both for the *diagnosis of less obvious pathology* and for the *positive demonstration of small bowel normality*. It is a more expensive diagnostic modality, is associated with increased patient radiation, and should only be done when there is clinical indication of small bowel pathology.

Enteroclysis should be the primary examination technique in the radiologic evaluation of (1) intermittent or partial

small bowel obstruction, ¹⁸ (2) in occult gastrointestinal bleeding when upper gastrointestinal or colon work-up are unrevealing, (3) in Crohn's disease when surgery is contemplated or when clinical suspicion is high and the "dedicated" follow-through is non-diagnostic, (4) in clinically diagnosed malabsorption for demonstration of structural abnormalities, and (5) when contrast evaluation of

the small bowel is needed in critically ill patients.

The conventionally performed followthrough examination will uncover only large or diffuse lesions and cannot make a *reliable diagnosis of normality*. Clinicians and radiologists should be aware of these facts in the choice of a technique for the barium examination of the small intestine.

REFERENCES

- 1. Gurian E, Jendrzejewski J, Katon R, *et al*: Small-bowel enema: An underutilized method of small-bowel examination. *Dig Dis Sc*, 27:1101-8, 1982.
- 2. Herlinger H: Why not enteroclysis? *J Clin Gastroenterol*, 4:277-283, 1982.
- Maglinte DDT, Burney BT, Miller RE: Lesions missed on small bowel followthrough: Analysis and recommendations. *Radiol*, 144:737-9, 1982.
- Maglinte DDT, Elmore MF, Isenberg M, Dolan PA: Meckel diverticulum: Radiologic demonstration by enteroclysis. AJR, 134:925-32, 1980.
- Miller RE, Sellink GI: Enteroelysis: The small bowel enema—how to succeed and how to fail. Gastrointest Radiol, 4:269-83, 1979.
- Amberg JR: Book review—Radiology of the small bowel, by J. L. Sellink and R.E. Miller. Martinus Nijhoff Publishers; Kluwer Boston Inc., Hingham, Mass., 1982. Gastroenterology, 84:1635, 1983.
- Marshak RH, Miller RE: Enteroclysis letter to the editor. Gastrointest Radiol, 5:187, 1980.
- 8. Sellink JL, Miller RE: Radiology of the small bowel. Martinus Nijhoff Publishers; Kluwer Boston Inc., Hingham, Mass., 1982.
- 9. Fleckenstein P, Pedersen G: The value of the duodenal intubation method (Sellink modification) for the radiological visualization of the small bowel. *Scand*

- J Gastroenterol, 10:423-5, 1975.
- Ekberg O: Crohn's disease of the small bowel examined by double contrast technique: A comparison with oral technique. Gastrointest Radiol, 1:355-9, 1977
- 11. Sanders DE, Ho CS: The small bowel enema: Experience with 150 examinations. *AJR*, 127:743-51, 1976.
- Vallance R: An evaluation of the small bowel enema based on an analysis of 350 consecutive examinations. *Clin Radiol*, 31:227-32, 1980.
- 13. Maglinte DDT, Hall R, Miller RE, et al: Detection of surgical lesions of the small bowel by enteroclysis. Am J Surg, 127:225-229, 1984.
- Rabe FE, Becker GJ, Besozzi JM, Miller RE: An efficacy study of the small-bowel examination. *Radiology*, 140:47-50, 1981.
- Nolan D.I., Marks CG: The barium infusion in small intestinal obstruction. Clin Radiol 32:651-5, 1981.
- Elmore MF, Maglinte D: Enteroclysis in the diagnosis of small intestinal bleeding (abs). Gastroenterol, 80:1142, 1981.
- Maglinte DDT, Burney BT, Miller RE: Technical factors for a more rapid enteroclysis. AJR, 138:588-91, 1982.
- Maglinte DDT, Peterson L, Vahey T, Miller RE, Chernish SM: Enteroelysis in partial small bowel obstruction. Am J Surg, 147:325-329, 1984.

Umbilical Arterial Rupture: A Major Complication of Catheterization

P. SASIDHARAN, M.D. Valparaiso

Abstract

Reported herein is a case of umbifical arterial rupture with pelvic exsanguination giving rise to severe shock in a premature infant. Prompt recognition and medical and surgical management resulted in a successful outcome.

MBILICAL ARTERIAL CATHETERS are associated with many complications. 1, 3, 4, 5, 6, 7, 8, 10, 11, 12 However, they continue to be one of the most common invasive monitoring techniques in newborns.

Even though umbilical arterial catheters are mainly indicated for repeated blood gas monitoring in infants with respiratory distress, many use them for various purposes. Some of these are continuous arterial PO₂ monitoring; arterial blood pressure monitoring; performing exchange transfusions; infusion of fluids and hyperalimentation solutions; performing aortography and evaluating ductal shunts. 11, 22, 13, 6

Even though several complications have been reported with umbilical arterial catheterization, rupture of the artery giving rise to pelvic exsanguination has been reported only once in the past.* We report a case of umbilical arterial perforation giving rise to shock which was diagnosed promptly and successfully managed.

The author is Director of Neonatology, Porter Memorial Hospital, 814 LaPorte Ave., Valparaiso, Ind. 46383.

Case Report

A 31-32 weeks gestation, preterm, male infant, who weighed 1,560 gms., was admitted to the Neonatal Intensive Care Unit because of respiratory distress soon after birth. The infant had moderate retractions and grunting. The x-ray findings were consistent with moderate Hyaline Membrane Disease. Soon after admission, the infant was placed on 4 cm of nasal CPAP in 50% oxygen. An umbilical arterial catheter (Argyle) size 5 French was used for insertion in the umbilical artery.

During the procedure of catheterization, the catheter could not be passed through one artery because of resistance felt at approximately 3 to 4 cm beyond the umbilicus. Hence, the other artery was used for inserting the catheter. After insertion of the catheter, both femoral pulses were palpable and the catheter position was confirmed by x-ray. The admitting hematocrit of this infant was 41% obtained from the arterial blood.

On admission, the blood pressure of the infant was 19 mm. Hg. Systolic. Soon after the catheter was inserted, the infant was infused with plasma and the blood pressure increased to 36 mm. Hg. Systolic at approximately 30 minutes after admission. However, the infant was noted to be pale. The hematocrit repeated one hour after insertion of the umbilical arterial catheter was 27%. At this stage, the abdomen was slightly distended and the drop in the hematocrit was thought to be due to either an acute intraventricular hemorrhage or internal hemorrhage.

A 16 gauge intracath was inserted into the peritoneal cavity and approximately 4 cc of blood was aspirated. The fontanelles were soft and there was no evidence of any other hemorrhage externally. A diagnosis of possible internal bleeding was made and the infant was transported to Children's Memorial Hospital. Meanwhile, the infant was given 20 cc of packed red blood cells, followed by 15 cc of fresh-frozen plasma and 55 cc of fresh whole blood through a peripheral vein. At approximately 3½ hours of age, the blood pressure was 35 mm. Hg. Systolic and the infant was operated upon immediately.

During surgery, using a mid-line incision, the peritoneal cavity was opened and a large amount of blood with clots was removed. The bleeding was noted to be from the lower anterior abdominal wall. A rupture of the umbilical artery was noted just distal to the hypogastric artery. The bleeding point was ligated and the infant tolerated the procedure well.

During the post-operative course, due to severe Hyperbilirubinemia (Bilirubin 16 mg %), the infant had two exchange transfusions. Computed tomography of the head, done prior to discharge, was normal with no evidence of IVH. The infant also developed renal failure, which gradually improved over the next several days. He was discharged on the 44th day after surgery. When seen in the Developmental Clinic at nine months of age, he was developing normally. His renal function was also evaluated with a BUN and Creatinine at four months of age. The values were normal.

Comment

We believe that this infant's survival was made possible by the prompt recognition of internal hermorrhage. Suspecting an umbilical arterial rupture was natural when no other etiology could be determined immediately. Also, the volume expansion required in order to maintain normal blood pressure was important,

along with the adequate respiratory support given through the respirator.

In the report by Miller, et al, there were seven cases of arterial rupture in which only one infant survived. They have also stated that with the use of 5 French umbilical catheter, this complication is not seen. Perforations have been noted in the umbilical artery below the annulus umbilicus and near the hypogastric artery. In our patient we used a 5 French catheter (Argyle). Prompt recognition is the most important factor in order to treat successfully. This particular infant was opened with a mid-line incision which gave adequate exposure, aiding in the easy localization of the hemorrhage. Adequate volume replacement for maintenance of normal blood pressure in the presence of normal acid base balance is one of the major aspects of the pre-operative management of these cases. Avoiding excessive force in the insertion of an umbilical arterial catheter is helpful in preventing this sort of complication.

There are several complications of umbilical arterial catheters, some of which are preventable, while others are not. Fortunately, most of the surviving infants who had an umbilical arterial catheter have very few long-term complications. ¹⁴ With the prevalence of cutaneous blood gas monitoring, more sensitive Doppler

BP equipment, and realtime ultrasound scanning, umbilical arterial catheters may be avoided in some infants.

It is our feeling that umbilical arterial catheterizations will still be necessary for some more time to come in Neonatal Intensive Care Units. Recognition of all of its complications, early identification and prompt intervention are important to reduce the morbidity associated with catherizations.

This case report is another example of a near fatal complication of umbilical arterial catheterization which should be viewed very gravely and probably not attempted in Level I hospitals without personnel adequately trained in the care of infants.

REFERENCES

- Cochran WD, Davis HT, Smith CA: Advantages and complications of umbilical arterial catheterization in the newborn. Pediatrics, 42:769, 1968.
- Symanski MR, Fox HA: Umbilical vessel catheterization: Indications and evaluation of the technique. *J Pediatr*, 80:820, 1972.
- 3. Neal WA, *et al*: Umbilical artery catheterization: Demonstration of arterial thrombosis by aortography. *Pediatrics*, 50:6, 1972.
- Kraus AN, Albert FR, Kannan MM: Contamination of umbilical vessel catheters in the newborn infant. J Pediatr, 77:963, 1970.
- Aziz EM, Robertson AF: Paraplegia: A complication of umbilical artery catheterization. J Pediatr, 82:1051, 1973.
- 6. Avery GB: *Neonatology*. 2nd Ed, Lippincott Co., 423-424.
- (7.) Miller D, et al: Pelvic exsanguination following umbilical artery catheterization. J Pediatr Surg, 14:3, 1979.
- (8.) Van Leeuwen G, Patnay M: Complica-

- tions of umbilical vessel catheterization: Peritoneal perforation. *Pediatrics*, 48:1028-1030, 1969.
- 9. Kanto WP Jr, Parrish RA: Perforation of the peritoneum and intra-abdominal hemorrhage. *Am J Dis Child*, October 1977.
- Marsh JL, et al: Serious complications after umbilical artery catheterization for neonatal monitoring. Arch Surg, October 1975
- 11. Mohan Rao HK, Elhassani SB: latrogenic complications of procedures performed on the newborn. *Perinatology-Neonatology*, 25-32, September/October 1980.
- 12. Larroche JD: Umbilical catheterization: Its complications. *Biol Neonate*, 16:101-116, 1970.
- 13. David RJ, et al: Prevention of umbilical artery catheter clots with heparinised infusates. Dev Pharmacol Ther, 2:117-126, 1981.
- Goram W: Umbifical artery catheterization in newborns. Acta Paediatr Scand, 69:371-376, 1980.

INDIANA MEDICAL BUREAU

1010 East 86th St.—72 Winterton Indianapolis 46240 844-7933

A Licensed Employment Agency Specializing in Medical Personnel

Since 1952

Mood Disorders: Pharmacologic Prevention of Recurrences

A National Institutes of Health Consensus Report Synopsis

RONALD H HULL, M D. Indianapolis

The need for this study was based on the premise that mood disorders, also called affective illnesses, are frequently recurrent or chronic and the degree of subsequent morbidity justifies greater focus on preventive maintenance treatment with antidepressant drugs and Lithium.

This report concerns only major recurrent mood disorders manifest by a full blown syndrome of depression or mania as designed by DSM HI. Unipolar disorder is defined as patients whose illness is limited to episodes of depression and bipolar disorders as those who have episodes of mania or hypomania and depression or episodes of mania alone.

The sequence of treatment of mood disorders is described as having the following phases: (a) an acute phase to control disabling symptoms (may be measured in weeks), (b) continuation phase to avoid relapses of a single episode (may be measured in months), and (c) a preventive phase to avoid recurrences of new episodes over time (may be measured in years). This report concerns only the preventive phase.

This synopsis is based on an NIH consensus development conference conducted in April 1984. The complete consensus statement is available from the Office of Medical Application of Research, Bldg. 1, Rm. 216, National Institutes of Health, Bethesda, Md. 20205.

As many as 50% of patients with recurrent unipolar disorders who recover from a given episode are reported to have a recurrence within the first two years after recovery. The likelihood of recurrence becomes much less after the first four to six months following initial symptomatic recovery, and is markedly reduced if the patient has been well for twelve to eighteen months. The rate of recurrence is greater in bipolar patients compared to unipolar. The rate of recurrence is higher in patients with other psychiatric disorders such as alcoholism, drug dependence, or anxiety disorder.

Preventive medication treatment is preceded by comprehensive medical history, physical examination, and appropriate laboratory testing to eliminate possible organic causes or conditions that would contraindicate the use of some of the medications.

History of previous episodes of depression and family history of bipolar disorders are strong indicators for the need of preventive treatment. The decision to use preventive treatment is complicated in women who are or may become pregnant and in those who have highly unpleasant side-effects of the medication.

Studies of the effectiveness of Lithium in bi-polar disorders show the frequency of recurrence of either mania or depression was reduced by 50%. The results were not as good in rapid cycling (three or more episodes a year) bipolar patients. Preventive treatment with Lithium was found to be equally effective against both manic and depressive recurrences in male and female adult patients. Insufficient

data are available regarding the treatment of children and adolescents. Anti-depressants are not effective in preventing recurrence of manic episodes.

Studies of the preventive treatment of unipolar disorder indicate that the use of anti-depressants or Lithium were both effective and that a combination of antidepressants with Lithium is somewhat superior.

The choice of drugs in treating unipolar disorder includes consideration of impaired renal function in older patients which may contraindicate Lithium. Other older patients may be vulnerable to sideeffects of tricyclic anti-depressants. Among the tricyclic anti-depressants, there is no clear choice, as all seem to have similar effectiveness, although in a given patient, one may prove to be better than another. Preventive doses of tricyclic antidepressants are usually effective at a level at or below that used in treating the acute episode. Serum Lithium concentrations between 0.6 and 0.8 mEq/L is usually satisfactory and associated with fewer side-effects.

The pattern of the patient's illness is the primary determining factor in considering cessation of treatment. Freedom of recurrence lasting longer than the previous duration of remission is one indicator that this discontinuation can be considered. Lithium can be stopped abruptly; tricyclics should be discontinued with decreasing doses spread over weeks or months.

In the course of preventive treatment, breakthrough episodes of significant signs of either mania or depression may occur. If depression is manifest and the patient

is on Lithium, thyroid function should be evaluated as a possible cause. Other alternatives in treatment-resistant cases that have been reported but not proven successful are the replacement of Lithium with carbamazepine. The addition of carbamazepine to Lithium or the replacement of tricyclic anti-depressants with monoamine oxidase inhibitors for depressive treatment failures is suggested. This report mentions electro-convulsive therapy only as an available option in severe manic or depressive treatment failures.

Psychological management of patients in preventive therapy is mentioned as a valuable aspect of developing patient compliance with medications dealing with side-effects and patients' concerns about medication. It is concluded that psychotherapy is helpful in alleviating depressive symptoms, but should be used in combination with, not as a substitute for, pharmacotherapy for long-term preventive treatment.

Except during the first trimester of pregnancy, there are a few significant permanent risks with either Lithium or

tricyclic therapy. Impaired thyroid function may develop in long-term use of Lithium. Earlier fears of irreversible renal damage from Lithium now seem to be unwarranted. Serum Lithium levels are usually monitored at intervals of one to three months and serum creatinine and thyroid functions evaluated every six to twelve months.

The panel recommended that research strategies be focused on the etiology and pathogenesis of mood disorders.

WARNING

OTC Ibuprofen as an Analgesic in Patients with Arthritis

KENNETH D. BRANDT, M.D. Indianapolis

Ibuprofen, a non-steroidal anti-inflammatory drug (NSAID), is now available to the public without a prescription. It may be purchased overthe-counter as either Advil or Nuprin, both of which are manufactured as 200 mg tablets. These preparations have been approved by the Food and Drug Administration for temporary relief of minor aches and pains of the common cold, headache, toothache, muscular aches, backaches, minor arthritis pain and menstrual cramps, and for reduction of fever.

Ibuprofen continues to be available also by prescription, as Rufen (400 mg tablets) or Motrin (300, 400 and 600 mg tablets). Both Motrin and Rufen are widely used in treatment of rheumatoid arthritis and osteoarthritis. When taken in sufficient amounts (e.g., 2400 mg per day), ibuprofen can reduce joint swelling, stiffness and pain in these diseases.

Is non-prescription use of ibuprofen safe? Advil and Nuprin are contraindicated in aspirin-sensitive

individuals since cross-sensitivity is likely. In addition, untoward effects may result from interactions of ibuprofen with oral anticoagulants and oral hypoglycemic agents. In common with aspirin and other NSAIDs which inhibit prostaglandin synthesis (e.g., Clinoril, Feldene, Indocin, Meclomen, Nalfon, Naprosyn, Tolectin), ibuprofen may cause gastritis, peptic ulcer, renal insufficiency, hepatitis, inhibition of platelet aggregation, and a variety of other side effects.

If Advil or Nuprin are used *alone* as analgesics, in the recommended low doses, and only for brief periods, side effects such as those mentioned above are very uncommon. However, if patients with arthritis take over-the-counter Advil or Nuprin *in addition to aspirin or a prescribed NSAID* they may be placed in "double jeopardy" with respect to development of serious side effects, such as those mentioned above. This problem may be especially great in the elderly.

Physicians prescribing an NSAID or a salicylate preparation as an anti-inflammatory agent for patients with arthritis are advised to caution their patients against use of Advil or Nuprin as a supplementary analgesic. In such cases, acetaminophen or Darvon, neither of which causes significant inhibition of prostaglandin synthetase, may be a suitable alternative to ibuprofen for relief of pain.

The author is Professor of Medicine and Chief, Rheumatology Division, Indiana University School of Medicine, Indianapolis.



If you recognize Tad's father, you'll recognize the name of one of the largest life insurance companies in America.

Lincoln. It's a name you'll remember.

Benefits available to members of the Indiana State Medical Association and their employees through expanded ISMA group sponsored Lincoln National Life health insurance coverage:

MEDICAL PLAN 1

365 Days of Inpatient Hospital Care

 100% payment semi-private or hospital ward room including the cost of blood 365 Days In-Hospital Medical Care

 Reasonable and Customary allowances for surgery, maternity, general anesthesia, medical visits, and radiation therapy

\$500 Supplemental Accident
Unlimited Major Medical Benefits

MEDICAL PLAN 2

• Comprehensive Major Medical expense protection-\$500 Calendar Year Deductible

Unlimited Maximum Benefits

MEDICAL PLAN 3

Comprehensive Major Medical expense protection - \$250 Calendar Year Deductible

Unlimited Maximum Benefits

MEDICAL PLAN 4

 Low cost comprehensive Major Medical expense protection - \$2,000 Calendar Year Deductible Unlimited Maximum Benefits

NEW DENTAL PLAN

 Reasonable and Customary allowances for necessary care and treatment for dental health

 \$1,500 Maximum Dental Benefit per person in a Calendar Year

The Lincoln National Life Insurance Company is most pleased to be underwriting the Group Medical and Dental Programs for the Indiana State Medical Association. Your benefit programs have been designed to provide the highest quality coverage and service at the lowest possible cost. A special claim paying unit has been established in our Indianapolis Group Benefits and Service Office to handle only the ISMA program. Should you have questions or problems, you may speak directly to your claim processor at 317-846-6211/800-692-6014. We look forward to serving your association and encourage your review of the programs and services being provided.

For more information call or write:

James D. Townsend or Earl W. Williams Professional Account Representatives 8900 Keystone Crossing, Suite 500 Indianapolis, Indiana 46240 (317) 846-7502 or (317) 844-3119

Tom Martens Director, Health Insurance Administration Indiana State Medical Association 3935 North Meridian Street Indianapolis, Indiana 46208 (317) 926-4424 1-800-382-1721



The Lincoln National Life Insurance Company

A member of Lincoln National Corporation

INDIANA GAZETTE

TALWIN NX...BUILT-IN PROTECTION AGAINST MISUSE BY INJECTION

Major Analgesic Reformulated

Now contains naloxone, a potent narcotic antagonist

Extra security added to proven efficacy and safety

No longer do doctors have to deny patients the benefit of an effective oral analgesic for fear of its misuse by injection.

Winthrop-Breon Laboratories has met a nagging problem by reformulating TALWIN® 50 (pentazocine HCl tablets) with the addition of naloxone, equivalent to 0.5 mg base. The reformulated product is called TALWIN®Nx.

The original formulation had been subject to a form of misuse among street abusers known as "T's and Blues." TALWIN 50 and PBZ*, an antihistamine, would be ground up together, put into solution, and injected intravenously. The combination produced a heroin-like high. Because naloxone is a narcotic antagonist when injected intravenously, it acts to nullify any high a "T's and Blues" addict might expect from the pentazocine in a combination of TALWIN Nx and PBZ. When taken as directed orally, the naloxone component of TALWIN Nx is inactive. Thus, TALWIN Nx continues to be a safe, effective, oral analgesic for the relief of moderate to severe pain, now providing added security against misuse.

*Registered trademark of Ciba-Geigy Corp for tripelennamine.



The reformulation of Talwin 50 to Talwin Nx involved the addition of 0.5 mg naloxone to help prevent misuse by injection.





Analgesic for Oral Use Only Contraindications: 11,111

Drug Abuse and Dependence with a Warnings: I ray a period of the analysis of a branch of a branch on produce the analysis and Dependence (i.e., Drug Abuse and Dependence) i result of a variable for a vari

described to the control of the cont The problem of the property of the problem of the p

Winthrop-Breon William I Sterling Drug Im New York NY 10016

How well are you communicating with your PATIENTS?



Patient compliance—how well patients follow instructions about taking prescription drugs—is something that worries health professionals, according to a recent Harris survey. And with good reason. A number of studies have shown that a third to a half of all drugs are taken improperly. Yet a Chilton survey found that only 2 to 4 percent of patients question their doctors about drugs prescribed for them.

It's up to health-care providers to open up the dialogue about prescription drugs. When you write, dispense or check on a prescription, make sure your patient knows:

- The name of the drug
- Its purpose—what conditions does it treat?
- How and when to take the drug—and when to stop taking it
- What food, drinks and other drugs to avoid while taking it
- What side effects may result—are they serious, short-term, long-term, etc.?
- A message from the Food and Drug Administration.

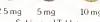
Angina comes in many forms...



So does SORBITRATE®)SORBIDE DINITRATE)

Unsurpassed flexibility in nitrate therapy.





















Sustained Action "Swallow" Tablets

ORBITRA

Please consult full prescribing information before use. A summary follows:

INDICATIONS AND USAGE: SORBITRATE (isosorbide dinitrate) is indicated for the treatment are 1 present, in of anyma per tons. All Josage forms, disosorbide dinitrate may be used prophylar to ally to decrease frequency and severity of anginal attacks an 1 can be expected to the mask the need for subdingual introglycerin. The subfingual and chewable forms of the drug are indicated for acute prophylaxis of angina per toris when taken a few minutes before situations likely to provide anginal attacks. Because of a sower object of effect, the oral forms of isosorbide dinitrate are not indicated for acute roundly as in

CONTRAINDICATIONS: SORBITRATE is contraind cated in patients who have shown

puterfield by cresensitivity and/un-yn-untraind cated in patients who have shown puterfield by cresensitivity and/un-yn-untraints. For intrinse Epinephrine and related compounds are ineffective intrinsers in the severe hypotensive event it associated with verdice and are contraind cated in the unitration.

WARNINGS: The benefits of SOABITRATE during the early days of an anute myocardial infair have not been established. If the elects to use organic nitrates in early infairtion hermodynamic monitring and frequent clinical assessment should be used because of the potential deleter, us effect is of hypotension.

PECAUTIONS: General: Severe hypotension.

maintinitination to beer established in the elects to use organic nitrates in early infarction helinodynamic moniting and frequent clinical assessment should be used because of the potential deleter has effects of hypotension.

PRECAUTIONS: General: Severe hypotensive response particularly with upright posture, may be or with even small trises. (IS) IRBITRATE The drug should therefore be used with caution in subjects who may have blood volume depletion from durient cherapy or in subjects who have now yelline blood pressure (eg.) below 90 mmHg). Paradox call bradycarda and increased angina pectoris may accompany intrate induced hypotension. Nitrate therapy may aggravate the angina caused by hypertophic Lardiomyopathy.

Marked symptomatic orthostatic hypotension has been reported when calcium channel bockers and organic nitrates were used in combination. Dose adjustment of either class of agents may be necessary.

Toleranic eto this drug and itoss tolerance to other nitrates and nitrites may occur. Tolerance to the vascular and antianginal effects of isosorbide dinitrates on introglycerin has been demonstrated in linical trials experience through occupational exposure and insolated tissue experiments in the laboratory. The importance of tolerance to the appropriate use of sistincide dinitrate in the management of patients with angina pectors has not been determined. However, one clinical trial using freadmill exercise tolerance (as an end point) found an 8 hour duration of action of oral isosorbode dinitrate for impina pectors has not been also active to the society of the programment of the programment

Is usurished dimitrate acts directly on vascular smooth muscle, therefore, any other agent that appinds or vascular smooth muscle as the final common path can be expected to have a reason or increased effect depending on the agent.

the treased in increased effect depending on the agent.

Carcinogenesis, Mutagenesis, Implaiment of Fertility: No long term studies in animals with the protorned to evaluate the carcinogenesis of this drug. A modified two litter agriculor in its dry in ratio feet sosorbide dinitrate at 25 or 100 mg/kg/day did not reveal any effects in fertility or gestation or any remarkable gross pathology in any parent or offspring led into the timitrate as impared with ratis fed a basal confro fed diet.

Pregnancy Category C: Isosorbide dinitrate has been shown to cause a dose related or reasoner entry it or inty increase in morn miled pups) in rabbits at oral doses 35 and 150 lines the maximum entremended human daily dose. There are no adequate and will introlled studies in pregnant women. SORBITRATE should be used during pregnancy in lytthe potential brenith justifies the potential risk to the fetus.

Nursing Mothers: this not known whether this drug is excreted in human milk. Because many drugs are encreted in human milk. caution should be exercised when SORBITRATE is administered to a runsing woman.

dner istered to a riursing woman.

Pediatric Use: The safety and effectiveness of SORBITRATE in children has not been.

ADVERSE REACTIONS: Adverse reactions, particularly headache and hypotension, are

demonstrating in the effectiveness of christin maintenance therapy with these disage forms have not been reported.

ARBITRATE in oral doses of 10 to 40 mig given every 6 hours win in oral controlled release for the 10 to 80 mig given every 8 to 12 hours is generally recommended. The extent to which the appropriate to believe in esholid modify the dosage program has not been defined. The oral introlled in the loss forms of isosorbide dinitrate should not be chewed.

DOSAGE FORMS AVAILABLE: Subtrigual Tablets (2,5 5 10 mig). Chewable Tablets (5 10 mig) (mail Tablet (5, 10, 1% 30, 40 mig). Sustained Action Tablets (40 mig).



FUTURE FILE

CONTINUED FROM PAGE 6

Drake Bicentennial

A symposium on medical education, to be held Oct. 18 at the University of Cincinnati College of Medicine, will culminate the bicentennial of Daniel Drake (1785-1852), the pioneer physicaneducator who founded the university in

A small, commemorative volume containing a number of Dr. Drake's unpublished orations will be published this

Kentucky CME Courses

The following AMA Category 1 courses are offered by the College of Medicine, University of Kentucky:

April 12-13—"Contemporary Pediatrics for the Practicing Physician," Hyatt Regency Hotel, Lexington.

April 19-20—"Diagnostic Techniques in Endocrinology," Hyatt Regency Hotel, Lexington.

April 20-21—"Contact Lens Workshop," Carnahan House, Lexington.

April 29-30—"Medical Aspects of Sports Symposium: Prevention of Sportsrelated Injury," Hyatt Regency Hotel, Lexington.

May 19-24—"16th Family Medicine Review: Session 11," Hyatt Regency Hotel, Lexington.

June 6-8—"New Developments in Cardiovascular Disease: Diagnosis and Treatment 1985," Hyatt Regency Hotel, Lexington.

Contact Joy Greene, 132 College of Medicine Office Building, University of Kentucky, Lexington 40536—(606) 233-5161.

Internal Medicine

1SMA members are invited to attend a CME meeting on "The Year in Internal Medicine," to be held Jan. 23-26 at the Alumni Center for CME, Northwestern University Medical School, 301 E. Chicago Ave., Chicago 60611.

CME accreditation is 22 hours, Category 1. The fee is \$205. Telephone: (312) 649-8533.

Motrin[®] ibuprofen, Upjohn 600 mg Tablets



More convenient for your patients.

Upjohn

HOWASTUDENT WHO COULDN'T LEARN TAUGHT EVERYONE AN IMPORTANT LESSON.

Everyone thought Matthew Francisco was failing school.

But was he really?

You see, Matthew has a learning disability. And no matter what his parents and teachers did, his problem only seemed to worsen. (Matthew even started running away from home to avoid school)

Finally Matthew's mother, Barbara, did some homework of her own and got in touch with the Minnesota Association for Children and Adults with Learning Disabilities, a United Way supported agency.

The Association helped Barbara deal with Matthew at home and his teachers deal with him at school.

Before long Matthew was solving problems in school instead of just being one. And through her involvement with The Association, Barbara now schools other parents with learning disabled children.

This is just one of thousands of similar stories from all over the country.

And, as the Franciscos can attest, United Way does a lot in your community.

Everything from day care to foster care to care for the elderly.

And what makes it all work are generous contributions from people like yourself.

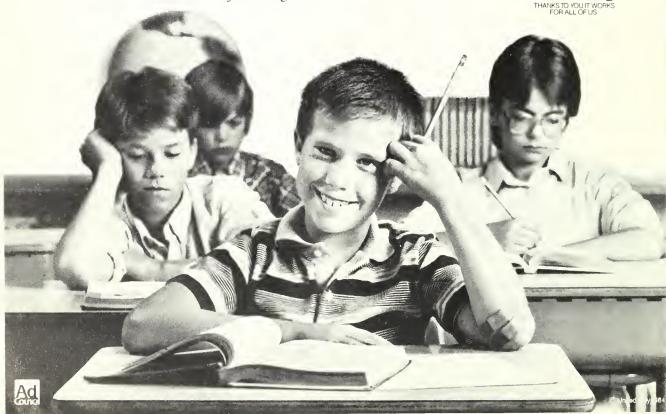
People who realize that without their help, United Way simply cannot exist.

Matthew, his parents and his teachers thank you.

So do we.



United Way



Our American Renaissance

There is a new sense of confidence in the future. A new confidence in ourselves. A renewed faith in our nation and her destiny. *Time* magazine made it official with its cover story on the

MERICA, SHE'S BACK, And Standing

official with its cover story on the American optimism, but you could sense it coming. It was in the air during the Los Angeles Olympic Games as the crowds roared U-S-A and those of us watching the television swelled with pride. We were reminded of our common destiny as a nation and as a people when we saw the rescued medical students kiss the ground as they returned from Grenada.

What created this American Renaissance? How have we as a people, in four short years, arisen from the swamp of self-doubt and hand-wringing of the late 1970s. Then we feared the future and were told to be ashamed of our past. We were told, and too many of us believed, that our best days were behind us—that a stagnant, limp economy was the best we could expect. Inflation, unemployment, and crippling interest rates were not challenges to conquer but permanent fixtures in a dwindling vision of tomorrow.

I proudly maintain membership in the Royal Order of the Wildly Optimistic, but even I must confess amazement at how rapidly we have turned around as a nation.

Inflation has fallen from the back-to-back years of double digit increases in 1979 and 1980 to below 4%.

Interest rates which rose to 21.5% in January 1981—their highest level since the Civil War—have fallen to 12.5% and continue to decline.



RICHARD L LESHER
President
U.S. Chamber of Commerce

America's Human Spirit Has Been Unleashed . . .

A record number of Americans are now at work. More than 6.8 million new jobs have been created since the third year of the tax cut took effect. Our job creation is outpacing any other nation's in the world, and all of Europe makes no secret of its envy and desire to follow our lead.

Economic growth is brisk, deep, led by investment, and strong across the board. America over the past year grew faster

than any other major industrial nation in the world.

Once again, America is the acknow-ledged world leader in economic growth, job creation, opportunities for the future, and strengthened military alliances.

New businesses are starting up at a record clip—over 600,000 a year. That is a tremendous number of men and women proclaiming their confidence in our future as a nation of expanding opportunity and real growth.

How did we do it? It began with leader-ship from a President who understood that there are no limits to America's future. No limits to our ability to dream and to make today's dreams tomorrow's reality. By cutting taxes and reducing extraneous and counterproductive regulations, President Reagan unleased the most tremendous force history has ever known: the human spirit, the free, untrammeled minds of free men and women working to make a better life for themselves and their families and their country.

Government could not solve our problems. Too much government was the problem. Together we found that there was no mountain too high, no challenge beyond our grasp. We stopped looking for problems and reasons why they are insurmountable and began to search for solutions.

We became a nation possessed of hope and confidence, not debilitating despair.

If we as a nation can continue the lowtax, less-regulation, low-inflation policies of the past few years we can and will build on our successes.

We can then turn to the world and say: You ain't seen nothing yet.

Competition in the Marketplace of Medical Care

PEENILY, Mayo Clinic has established two satellite clinics in the Sun Belt—one being at Jacksonville, Florida—the second in Phoenix, Arizona. The clinics will focus on adult outpatient care of patients with serious health care problems. Physicians currently with the Mayo Clinic will be transferred to the satellite centers with support personnel being recruited from the respective surrounding areas of Jacksonville, Florida, and Phoenix, Arizona.

I found this transaction an interesting example of current day marketing because the planners of corporate policy for the Mayo Clinic are responding to two major forces that are prevalent in the health care marketplace affecting Mayo Clinic one being that the general population is leaving the northern cities of our nation and moving South and West, and the other is the trend from inpatient to ambulatory carc.

As indicated in my address to the ISMA House of Delegates in October of 1984, the topic of competition has to do with the subject of Marketing and why it is important to Indiana physicians and what your Indiana State Medical Association should be doing to aid physicians in developing the marketing skills necessary to practice in a competitive environment. This competitive environment is not restricted to physicians competing with physicians, but includes an ever expanding list of competitors inclusive of hospitals and non-physician practitioners, industry, government, retailers and proprietaries.

Marketing is a social process and occurs everytime a consumer purchases a product or a service. Marketing is a social process focused on creating consumer satisfaction and providing a service or a product that meets the consumer need, at an acceptable, reasonable and affordable



LAWRENCE E. ALLEN, M.D.

President
Indiana State Medical Association

price made available in a timely and acceptable manner. This description of Marketing was contained in the remarks of Bruce Allen, Vice-President of Marketing Strategies for the Community Hospitals of central California. Mr. Allen was one of the participants in the 1984 American Medical Association Leadership Conference conducted in Chicago.

It is safe to say that in view of the current competitive environment, that any physician who does not display good marketing skills will find that his or her competitors will take the power of the market place away from them and the freedom to run their own private practice. These seem to be foreboding words, but they forecast a future reality that is becoming increasingly more imminent with each passing day. It is painfully clear

that the concept of traditional medicine will radically change when for-profit firms begin to employ physicians and usurp their right to bill patients directly and determine their own fees, and thus market their skills.

Increasingly over the past two decades the health care market place has been responding to competitive pressures by spawning alternative delivery and financing systems. Thus we have witnessed the development of ambulatory surgi-centers, free standing emergi-centers and dialysis centers, laboratories and imaging centers, prospective payment systems, health maintenance organizations, and preferred provider organizations.

Group practices for physicians are growing steadily in number and size due to over-supply of physicians and the high cost of setting up a solo practice, as well as new Medicare reimbursement rules. According to AMA findings, between 1969 and 1980, the number of group practices increased nearly 70%. At the same time the number of physicians practicing in medical groups more than doubled. In 1980, one out of four non-federal physicians were affiliated with a group practice. Although the group practice design may continue to change, there are certain basic types of group practice organization recognized today.

- (1) SINGLE SPECIALTY GROUPS—a medical group providing service in only one field of practice, or major specialty, with the exception of maybe General Practice groups which are considered a separate type. Such specialty groups have shown the biggest growth rate probably because the physicians involved find it similar to the single specialty.
- (2) GENERAL FAMILY PRACTICE GROUP—a medical group composed entirely of general family practi-

tioners. It is similar to the Single Specialty Group except the physicians involved are engaged in general family practice.

(3) MULTI-SPECIALTY GROUP—A medical group providing specialties in at least two fields of practice. A newer development in this area is the primary care group consisting of family practitioners, internists, pediatricians and physicians specialized in obstetrics and gynecology.

(4) HEALTH MAINTENANCE ORGANIZATION (HMO)—Three of the more common types of HMO include

Without Good Marketing Skills, You Could Lose the Freedom of Running Your Own Private Practice

the Staff Model HMO, the Group Model HMO and the HMO that is an individual practice association or IPA.

The Staff Model HMO is one in which the physicians are directly salaried as employees of the HMO. Metro Health Plan of Indianapolis is a Staff Model HMO. The Staff Model HMO usually:

OWNS OR LEASES MEDICAL FACILITY

OWNS OR LEASES MEDICAL EQUIPMENT

PURCHASES ALL MEDICAL SUPPLIES

HIRES ALL STAFF INCLUDING PHYSICIANS

CONTRACTS WITH HOSPITALS, SOME SPECIALISTS, SOME SERVICES.

The *Group Model HMO* which is showing the fastest growth of any of the HMO types, is one in which physicians are members of a partnership or service corporation which contracts with the HMO to provide services to members or enrollees on the basis of capitation reimbursements. Such reimbursements represent a pre-determined amount of monies that are received by the physician partnership or service corporation in return

for providing services to a pre-determined group of patients. Such monies are received usually on a monthly basis, irrespective of services rendered. Consequently, partnership or service corporations having such contracts might experience a profit or loss, depending upon the overall costs involved in providing services for the pre-determined number of patients assigned to their group.

The third type of HMO is an individual practice association or IPA. That's a physicians' organization which provides services to HMO enrollees. The HMO contracts to pay the IPA administrator according to a capitation arrangement through which a pre-determined amount of money is paid to the IPA based upon the number of HMO enrollees. The IPA administrator in turn pays its physician members, usually on a fee for service basis. The attractive features of an IPA are that its physicians work in their own offices where they serve both HMO members as well as their usual patients, and are reimbursed according to the traditional fee for service arrangement. Maxi-Care of Indiana, Inc. is an IPA model. It should be emphasized, however, that there is no "typical" IPA, and variations are as frequent as the theme itself.

One of the most recent models for providing health care based on the so-called pre-payment system is the Preferred Provider Organization or PPO. This is an organized network of providers of health care usually sponsored or developed by hospitals, physicians, hospitals and physicians, insurance companies or other payers, employers, or for-profit investors. The PPO contracts to provide health care services on a pre-determined payment basis and may include fee for service arrangements with or without discounts. Another alternative for reimbursement under the PPO is through risk sharing payments usually based on guarantees through which the provider may receive 80% of his usual fee as a guarantee, while the balance of reimburseable monies would be retained in a fund to be distributed at the end of the fiscal year to the individual participating providers, based upon the profit or loss experience

of the PPO.

The patients who would be eligible for group insurance benefits, would, in the case of the PPO be a defined group of persons and their eligible dependents. Such patients or enrollees might be employees who are self-insured or who have purchased their insurance policy from one of the usual insurance carriers, or who have had their policy purchased for them by their employer or other third party administrator, such as the Medicare intermediary. The insured enrollee and dependents are not locked into a system

ISMA Is Sponsoring Regional Seminars to Discuss Alternative Health Care Delivery Systems

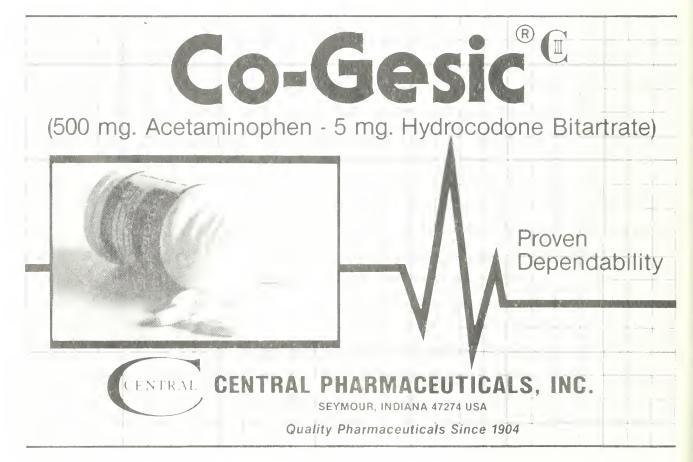
of specific providers, but may actually choose from among any of the available participating or non-participating providers who are usually designated as preferred or non-preferred providers. The provider in this instance usually will be a physician or hospital. Should the enrollee or patient choose to receive his care from a non-preferred provider, the patient's portion of the cost or fee for service is usually greater than if the enrollee would receive his care from a preferred provider. Nonetheless, fees are generally negotiable and the system of the PPO is built on expectations which for the patient includes reasonable access to care, quality assurance, and a broad scope of available services. The expectations for the PPO administrators relate to a system of strict utilization review, while the payor for such PPO services expects a dollar savings to result, either in the form of discounts in the gross overall cost, or a slowing of the increase in cost. Utilization review and quality assurance review, as well as patient satisfaction, becomes a function of the PPO organization and may be either contracted out to a private review organization such as IPRO, or Indiana's Professional Review Organization, or such review may be conducted in ternally by the PPO organization or by the payor purchasing services from the PPO organization.

How patients and physicians respond to such medical practice designs, will in part determine their success. As long as the economic forces continue to push medical care at the lowest possible cost and favor health care delivery designs that promote less and less ntilization of medical service, such alternatives will remain in the forefront as medical planners react to the realities of the market place. For a physician thinking of joining a Prepayment System (PPS), ISMA has this advice: Before signing any kind of con-

tract, legal review is necessary. Secondly, there is a very simple way of doing an evaluation of whether or not to join a PPS. Take a piece of paper and fold it in half and list what the commitments of the PPS are to the physician and what the physician's commitments are to the PPS. Then weigh the benefits and advantages of joining versus the restrictions that one might find in joining a PPS.

The ISMA policy is one of neutrality toward such alternative medical practice models with the belief that all forms of medical care delivery should be allowed to compete freely and fairly in the marketplace. There is strong objection, however, to any unfair preferential treat-

ment given to any particular delivery mechanism. In the interest of providing helpful information and guidance to its membership in considering the various competitive forms of health care delivery, ISMA is sponsoring regionalized seminars on the subject of alternative health care delivery systems. In order to respond to the expressed interest of many ISMA members, the ISMA staff would appreciate receiving addressed inquiries concerning the need for further information about competition, marketing and alternative health care delivery systems. Please address mailings to ISMA in care of Ken Bush, 3935 North Meridian Street, Indianapolis, Indiana 46208.



48

Contracting Questions for Physicians

Alternative Delivery Systems

HE FOLLOWING QUESTIONS are ones you might want to consider when reviewing a contractual agreement with a health maintenance organization (HMO), an independent practice association (IPA), a preferred provider organization (PPO), or an exclusive provider organization (EPO). The questions are intended to help you make a decision and are not meant to be an endorsement or rejection of any delivery system. A contract is a binding document, and it's a good idea to get specific legal guidance from your attorney.

Identifying Contracting Parties

(1) Is the legal name and status of each and every party to the contract identified? Can you identify each of the parties? (The legal status of the parties may have an impact on the determination of legal responsibility.) (2) What is the contracting party's track record and financial condition?

Quality of Care

(1) Does the contract allow you to practice medicine in a manner that is personally acceptable? (2) Does the contract provide for any entity(ies) other than treating physicians to control determinations as to quality of care; if so, which other entity(ies) have such authority and under what circumstances? (3) Are there cumbersome bureaucratic arrangements for securing authorization? (4) Are all medical policies clearly stipulated in the contract—have you reviewed these policies? (5) Do contractual requirements, including cost containment, impact on quality of care decisions?

Reprinted with permission from the *Bulletin*, North Carolina Medical Society, October 1984.

Contract Restrictions

(1) Does the contract limit referrals to only participating/contracted physicians? (2) Is there a mechanism by which you are made aware of all contract physicians and their qualifications? (3) Do you assume financial liability if your patient is referred to a non-contracted physician? (4) Is the physician limited to contracted hospital/diagnostic services—are these clearly identified in the contract or through some other formal mechanism? (5) Does the contract limit patient coverage during your absence to contract physicians? (6) Will the arrangement disrupt or enhance customary referral patterns?

Professional Liability

(1) Does the contract contain a "hold harmless" provision that indemnifies the physician from negligent acts of other parties? (2) Is there a minimum professional liability coverage limit mandated in the contract? (3) Does the contract mandate that a claim for professional liability against a physician be resolved in any other manner except through customary processes? (4) Does the contract interfere with a physician's autonomy in the selection of a professional liability carrier? (5) Does the contract provide professional liability coverage for administrative or peer review activity performed by a contracted physician on behalf of the plan? (6) Does the contract contain provisions which inhibit prudent medical practice such as limiting or eliminating certain diagnostic or therapeutic procedures that could be interpreted as your community's standard of care thereby increasing the professional liability risk? (7) Does your malpractice coverage exclude contractually assumed liabilities'

Medical Records

(1) Does the contract authorize access to your patients' records by other parties involved in the contract? Under what circumstances? (2) Does the contract recognize legal and ethical responsibilities in obtaining signed consent forms prior to access by other parties? Is the contract language specific on this issue? (3) Does the contractual language pertaining to medical records conform with state law either by reference to a specific statutory provision or through the use of a general statement?

Workload

(1) Does the contract stipulate a minimum or maximum annual patient load for a contracted physician? (2) Does the contract stipulate whether a physician is obligated to accept any and all plan enrollees as patients? (3) What are the contractual obligations for stand-by or on call services by contract physicians?

Covered Services

(1) Does the contract specifically identify covered services and non-covered services? (2) Is there any contractual obligation to provide non-covered services to contract enrollees on demand? (3) Is there any legal obligation to provide non-covered services to plan enrollees on demand? What protections exist for physicians in the contract language if non-covered services are not provided (financial, legal liability)?

Financial Obligations

(1) Does the contract create any financial liability or obligations for the physi-

cian in terms of the services ordered? (2) Does the contract impose any financial obligations on the other parties? Do exemptions exist? Under what circumstances?

Utilization/Quality Review

(1) Does the contract stipulate preadmission certification for all nonemergency admissions? What notification period is required? (2) Does the contract provide for involvement in peer review activities by contract physicians? (3) Does the contract mandate utilization/appropriateness review activities of your practice? (4) Who does the utilization and medical appropriateness review? What are their credentials? (4) Have you had an opportunity to study the review criteria and process?

Appeals

(1) What appeals mechanism exists for adverse review determinations? (2) Is there an arbitration clause? Who are the arbitors? Are there limits on the appeals which can go to arbitration? Does the arbitration clause preclude going to court until the arbitration process is completed? Who pays the cost of arbitration?

Termination

(1) Does your termination (voluntary, involuntary) from the plan preclude you from continuing your patient-physician relationships? (2) Under what circumstances can the physician action is required? What notification period is specified? (3) Can the contract be terminated for cause? Are causes for termination spelled out? Is non-payment to physician a cause? (4) Do your obligations continue beyond the date of termination? How long? (5) Do you have the right to terminate if the other party becomes insolvent?

Reimbursement

(1) Are the reimbursement provisions clearly specified? (2) Can the reimbursement provisions be unilaterally changed during the contract period? (3) Is there a provision for renegotiation of the reimbursement guidelines? Who makes the decision? (4) What are the terms of any discounting or hold back provisions? Are they clearly defined? (5) Are co-payments and deductibles owed by the plan enrollees clearly defined? Can they be changed during the contract year? Does a mechanism exist to provide you with prompt

notification of such changes? (6) Is there a contractual time limit for claim submission? Is there a penalty for late submissions? (7) Is there a reimbursement turnaround time specified in the contract? Does the plan pay a penalty for late reimbursement? (8) Does the compensation schedule raise antitrust concerns?

Other

(I) Are all contract provisions in conformance with applicable State laws and regulations? (2) Does a mechanism exist to identify plan enrollees? How are they identified? Is there a requirement that verification take place prior to each visit? (3) If the contract states that the contract physician will be bound by all articles of incorporation, by-laws, etc.-have you reviewed these documents? Is there a provision that contract physicians can be notified of all contract modifications? Is the physician bound by these modifications? (4) Are you prohibited from contracting with any other plan under the contract? (5) Is there a "corporate practice of medicine" legal problem? (6) Does the contract contain policies, procedures or regulations which are not attached?

More than 50,000 reasons to buy your Professional Liability Insurance from the Leader.

Your peers. More than 50,000 physicians and surgeons countrywide who are insured with St. Paul Fire and Marine Insurance Company.

They know that The St. Paul is the nation's leading medical liability insurer and they know why. With more than 40 years of experience in the medical market, we offer a superior, flexible, comprehensive insurance protection plan. Take a look for yourself.

Our professional liability policy provides flexible limits to meet your own needs—individual limits of up to \$10 million. And there are no policy exclusions. All this and very competitive rates for Indiana physicians!

You may also want to select our optional Professional Office Package for your other property and liability insurance needs. And, no matter which coverages you choose, you'll receive the best possible claim-handling services available with local attorneys and our Indianapolis and South Bend offices. Not to mention our loss prevention/risk management services which have established the industry standard!

So talk to one of the 167 Independent Agents representing The St. Paul in Indiana. And do it for the reasons that you like best.

Equipped to meet all your insurance needs.



Medical Services Division





St Paul Fire and Marine Insurance Company/St. Paul Mercury Insurance Company/The St. Paul Insurance Company/St. Paul Guardian Insurance Company. St. Paul Indemnity Insurance Company/The St. Paul Insurance Company of Illinois. Property and Etability Affiliates of The St. Paul Companies Inc. Saint Paul. Minnesota 55102



AUXILIARY REPORT

Judy Koontz (Mrs. James A.) President, ISMA Auxiliary

Leadership training and timely health topics were presented to more than 250 county presidents-elect at the American Medical Association Auxiliary's Leadership Confluence held Oct. 14-16 at the Drake Hotel in Chicago.

Held annually for county auxiliary presidents-elect, the meeting offered seminars covering a wide range of leadership skills and health-related issues. New this year to the meeting was the Sunday afternoon Idea Exchange, designed to give state and county representatives an opportunity to share project ideas, ask questions, and express their concerns. Also invited to attend the confluence were state presidents, presidents-elect, membership chairmen, and staff executives; national board and committee members; and past presidents and honorary members.

Prenatal and postnatal care, the impaired physician, and coping with the problems of malpractice were among the subjects covered at the topic seminars. This year, as an additional focus to the AMA Auxiliary's Shape Up for Life Campaign, prenatal and postnatal care were covered in a seminar by Ann L. Wilson, Ph.D., associate professor of pediatrics at the University of South Dakota School of Medicine, Sioux Falls, S.D.

A seminar which informed participants about programs currently available to help the impaired physician was led by Joseph R. Cruse, corporate medical director of the River Park Corporation, Pierre, S.D. "Coping with Malpractice Problems" featured Elvoy Raines, J.D., associate executive director of the American Society of Law and Medicine, Boston. Mr. Raines explored the impact that professional liability and medical malpractice litigation have upon physicians and their families. The AMA Auxiliary offered the seminars on the impaired physician and malpractice as part of its renewed commitment to act as a



AMONG INDIANA'S AND MICHIGAN'S AUXILIARY REPRESENTATIVES at the Leadership Confluence were (from left, front row) Muriel Osborne, ISMA-A president-elect; Nancy Crandall, Michigan's Auxiliary president; and Judy Koontz, ISMA-A president. From left, back row, are Cathie Martin, Michigan's Auxiliary president-elect; Alfrieda Mackel, ISMA-A membership chairman; and Marqueta Morley, Michigan's Auxiliary membership chairman. The Indiana auxilians challenged their Michigan counterparts to a membership contest for the 1984-85 period.

support system for the medical family.

A variety of seminars were offered to help participants strengthen their leadership skills in such areas as legislation, parliamentary procedure, time management, working with the media, and managing conflict. Additional meeting activities included committee meetings, membership workshops, state exhibits, a resource center of national materials, luncheons and receptions, and a group walk along the lakefront for early risers.

James H. Sammons, M.D., executive vice-president of the American Medical Association, delivered the keynote address at the opening dinner of the AMA Auxiliary's Leadership Confluence. Among other speakers who addressed the group were Fred C. Rainey, M.D., chairman of AMPAC (the American Medical Political Action Committee); and Marilyn Benveniste, author and consultant from Atlanta, who spoke on leadership styles

and strategies. At the final luncheon, AMA President Joseph F. Boyle, M.D., brought the confluence to a close.

Indiana county presidents-elect attending the 1984 confluence were: Barbara Maldia (Mrs. Godofredo), Allen County; Pam Hagedorn (Mrs. Jeffery) Bartholomew-Brown; Alexandra Kocoshis (Mrs. Thomas), Delaware-Blackford; Dolores Graber (Mrs. Alvin), Elkhart; Lourdes Gomez (Mrs. Cesar), Lake Hammond; Beverly Fischer (Mrs. Allan), Marion; Evelyn LaFollette (Mrs. James), Owen-Monroe; Debra McKinney (Mrs. Donald), Tippecanoe; Pam Willhite (Mrs. Larry), Vanderburgh.

The Indiana delegation also included ISMA-Auxiliary President Judy Koontz (Mrs. James); President-elect Muriel Osborne (Mrs. John); and First Vice-President Alfrieda Mackel (Mrs. Frederick).—Muriel Osborne, President-elect, ISMA Auxiliary

Kodak presents...





The KODAK EKTACHEM DT60 Analyzer creates an extra service for your patients without extra investment in labor. And because it can pay for itself in three months, it's a timely investment in your future.

The chemistry tests you need

With the DT60 Analyzer you perform key chemistry

tests in your own office instead of using an outside laboratory. Available tests include glucose, cholesterol, triglycerides, BUN, uric acid, sodium, and potassium, with total hemoglobin and bilirubin coming soon.

The time you need

Get test results in five minutes or less; perform

up to 75 tests an hour. Save time waiting for results to assist in your diagnosis, and on followup phone calls.

The accuracy you need

The DT60 Analyzer uses proven technology and methodology from the KODAK EKTACHEM 400 and 700 Analyzers, which

ment for your office.



ovide millions of accurate, ecise results to clinical coratories nationwide.

he simplicity ou need

ne DT60 Analyzer, comct as a personal comiter, features dry slide chnology to eliminate et reagents. It is autoated to free up your aff, and training takes only minutes. From the finger-stick sample to results printout, the DT60 Analyzer is simplicity itself.

To see what the DT60 Analyzer can do for you, write Eastman Kodak Company, Dept. 740-B, 343 State Street, Rochester, NY 14650, or call **1 800 44KODAK,** Ext 423 (1 800 445-6325, Ext 423) today.



Leading the way in healthcare technology for over 100 years.

KODAK EKTACHEM
Clinical Chemistry Products

EDITURIALS

Avoiding Malpractice Suits

Every physician in practice should have a copy of the August-September 1984 issue of "The Medical Practice f etter." That particular issue of the newsletter contains a detailed and well written discourse on "Avoiding Malpractice Litigation."

The text isn't long. It's easy to read because it lists the important considerations and discusses each one in a few words.

Back issues may be obtained at \$12 each from The Medical Practice Letter, 227 Everit St., New Haven, Conn. 06530 —(203) 776-5326.

Open Letter to Indiana Physicians

Dear Colleagues:

We are pleased to announce that the Lincoln National Life Insurance Corporation has entered an agreement with the Indiana Foundation for Medical Care to provide preadmission review and concurrent review services for Lincoln employees and agents with the state of Indiana. This program is effective Jan. 1, 1985.

The Indiana Peer Review Organization and the Indiana Medical Review Organization will perform concurrent review for patients hospitalized in the areas they serve. In addition, IPRO will perform Lincoln's preadmission review for the whole state, as they do for the Medicare program. Unlike the Medicare preadmission screening program, however, *all* elective admissions for Lincoln employees and agents will be subject to preadmission review. The toll free number is (800) 421-6558. In the Indianappolis area, the local number is 844-4733.

We welcome any questions you may have about the program for Lincoln employees. Please feel free to contact the Indiana Foundation for Medical Care at (219) 482-4692 or the physician review organization in your area. We look forward to working with you.—Fouad A. Halaby, M.D., Chairman, Board of Directors, Indiana Foundation for Medical Care, Fort Wayne, Ind.

Neurologist Takes Issue with CME Article on Simple Febrile Seizure

Letter to the Editor

The CMF article in the September 1984 issue of INDIANA MEDICINE regarding "simple febrile seizure" in children contains several points about which I wish to express my opinion.

I agree that "seizure in a child with fever is a most frightening experience for parents" and this truism should be strongly considered by any physician dealing with this problem. Unfortunately the question of "febrile seizure" of any kind remains a medical enigma up to this date. As an "old-timer" neurologist, I believe HISTORY is the most important part in diagnosing any disease. Statement of "eighty-five percent of simple febrile seizures are generalized in nature with the remaining 15% being focal" is very challenging to me, since I believe all focal seizures should be treated "prophylactically." So is "these seizures are typically short in duration, with 50% lasting less than five minutes and 75% lasting less than 20 minutes." Any seizure lasting more than five minutes scares me. Duration of any episode which is longer than five minutes, to me, is definite indication for long-term treatment. Convulsion by itself is not important but complications, as the result of it, are extremely important since it can even cause permanent CNS damage. These complications mostly, if not all of the time, occur with long lasting seizures or status epilepticus.

In consideration of "it is rare that a physician will see a simple febrile seizure" one should realize the fact which consists of "frightening experience for parents" and estimation of time as well as duration of a seizure by them. Some years ago, during my membership on the faculty of University of Louisville, School of Medicine, in a class-room attended by several senior medical students and residents of neurology, I induced a petit mal seizure in a young girl by hyperventilation and asked everyone to tell us the duration of the episode. It varied between 30-60 seconds, or so. We do know one duration of a simple P.M. seizure is less than 20 seconds! How could one rely on time element estimated by parents of a

child with a seizure which had caused a devastating experience to them?!

As stated above, I believe all focal seizures should be treated and for this reason, I strongly disagree with statements such as "... if an EEG is done one to two weeks after a simple febrile seizure..." In any child an EEG should be done as soon as possible to be sure about absence of FOCAL irritative focus, since presence of such abnormality, to me, also indicates long-term treatment.—S. Taha Anvari, M.D., Huntingburg, Ind.

The Authors Reply

We feel that Dr. Anvari's letter, expressing his views on febrile seizures, underscores the fact that there are differences of opinion concerning this problem. It is doubtful that all of the members of the National Institutes of Health Consensus Development Panel on Febrile Seizures were in total agreement on all aspects of their report.

As we stated in our article, we are proposing one set of guidelines for management of febrile seizures based on the NIH Consensus Development Conference, fully realizing that there are honest differences of opinion and that each case must be considered on an individual basis—John E. Heubi, M.D., and Philip F. Merk, M.D., Dept. of Pediatrics, Wishard Memorial Hospital, Indianapolis.



"Send in someone who won't complain about the cost of medical care going up."

Dental Sealants

Commentary

Dental sealants are plastic films that are professionally applied to the pits and fissures on chewing surfaces of posterior teeth to seal out tooth decay. (They are used as an adjunct to topical fluoride treatments—dental office, dentifrices, home rinses—which work essentially on smooth tooth surfaces and have minimum benefit against pit and fissure caries).

In December 1983 a consensus development panel of the National Institutes of Health determined that the routine use of sealants in private practice and in public health dental programs is desirable and should be promoted.

As a result, a vigorous effort will be undertaken to inform the public about sealants, their effectiveness and safety, and the rationale for their use. Efforts will also be made to gain routine acceptance of sealants for third-party insurance programs and for government-funded programs.

Clinical and basic research should continue to further improve sealant technology.—Victor H. Mercer, D.D.S., Indiana State Board of Health, Indianapolis.

The Antonym of 'Cognitive' Guest Editorial

Would you like to know why Medicare is facing bankruptcy? Listen; I will tell you.

A 71-year-old patient calls my office and reports that, for the previous three days, he has experienced nausea and abdominal discomfort. He has had black, tarry stools. Just prior to his call, he vomited some material which looked like coffee grounds, after which he felt weak and sweaty.

Upon my advice, the patient's wife takes him to the emergency room of a local hospital. After the patient has been examined by the emergency room physician, I talk with the physician and learn that the patient "looks pretty good," that his vital signs are normal but the stool is black, tarry, and guaiac positive. I order his admission to the hospital intensive care unit with the diagnosis of "Intestinal bleeding, cause undetermined." The emergency room physician is kind enough to accept and record my orders.

Taking my office record with me, I go to the hospital and enter the patient's room. I abbreviate the history, confirming my questions to those which can be answered by a nod of the head. I complete my cursory examination, visit with the patient's terrified wife and son, and write up my findings. Meanwhile, some of the results of the laboratory studies are reported. A borderline anemia, a slight reticulocytosis, and marginal elevations of total bilirubin and blood urea nitrogen. Everything else is completely normal.

I discuss with the patient and his family the need for two consultants; a gastroenterologist and, in case of need, a surgeon to stand by. The patient nods his consent.

The gastroenterologist reports before noon the following day. The results of his gastroscopic examination are essentially negative, but three areas are biopsied. Perhaps a CAT-scan and a colonoscopic examination would help define the cause of the illness. The patient's condition is good and he tolerates the procedure well. The surgeon, who sees him immediately following the study, agrees. He doesn't think he will be needed, but will continue to see the patient.

Repeat blood counts show no change. By the time I make my third visit, the patient is unhappy, gesturing that he wants the tube taken out of his nose. He sticks out his tongue and points to it before wiping it with the washcloth he holds. He displays the cloth to me. It is streaked with bright bed blood.

"That's from the tube—taking it out and putting it back in," I say reassuringly.

He shakes his head in vigorous denial, marking the end of Medicare's coverage.

Everything—the emergency room visit, the laboratory studies, the hospital stay, the consultations, the intubations, the medications, the injections, the intravenous fluids, the gastroscopic examination, the biopsies, and the pathologists' services—everything to this point is considered partially or totally reimbursable under the current Medicare policies. What follows is considered a "cognitive service" and is virtually ignored or considered unworthy of reimbursement by the unenlightened, misguided bureaucrats who make such decisions.

"You mean your nose has been bleeding?" I ask my wide-eyed patient. "For how long?"

"For a week!" he gags, "My grandson accidentally hit it when we were playing touch football last week. It's still sore. I wonder if it's broken. It's bled a lot!"

I remove the tube as I ask the wife about the accident. The patient interrupts, clearing his mouth with the washcloth. "I didn't tell her because she would scold me."

Keep in mind, Medicare will pay me more for the few minutes it takes to do a proctoscopic examination than it will pay me for the two hours of "cognitive services". I render eliciting a complete medical history and doing a complete physical examination. It will pay me more for doing something to a patient than I can earn in determining whether it needs to be done.

Do you wonder why so many patients are having so many things done to them and so little done for them?

cognitive: based on or capable of being reduced to . . . factual knowledge (Webster)

Do you wonder why our great leaders in Washington are insisting that cognitive services are worthless?

Do you wonder why Medicare is facing bankruptcy?—Mark J. Johnson, M.D., editor-in-chief, Journal of the Oklahoma State Medical Association. Reprinted from the September 1984 issue with permission.

I Submit, or Why Not?

Guest Editorial

Where are our statesmen; those of the stature of Jefferson, Webster, Clay and Calhoun; patriots all, who put the nation above self. They are among us in our legislature, and in our institutions of higher learning and "think tanks."

Why are they not heard? Because we are a permissive society. Authority is without honor. Our senses are offended by the Babel of a clamorous media thrust upon us. The message is to the effect that everyone has a right; a right to remain young, a right to be witty, a right to be equal and a right to remain mediocre prevails over the right to listen.

Oh yes, the federal budget; pabulum or

EDITORIALS

calamity, depending upon what day.

Knowledgeable men in government know the cause of high interest rates to be not of the deficit per se but of federal spending. They are aware that raising taxes will not suffice unless accompanied by decreased federal spending.

The spectra of having to say no to thousands of special interest groups and to attack the entitlements is an onerous task requiring a monumental effort and discipline on each side of the aisle. However, if not before, then after the elections right will prevail by reason of imminent monetary catastrophe and public demand.

Facts! Approximately 20% of all deaths in the United States are caused by cancer and although the number of cancer cases is steadily increasing as the population grows, the age adjusted total cancer incidence and mortality rates for sites excluding the respiratory tract have, as a whole, remained stable during the last 40 years. Cancer of the respiratory tract accounts for 25% of all cancer deaths and cigarettes are considered to be the cause. Cancer of the respiratory tract is now threatening to surpass cancer of the breast, the most common carcinoma in the female.

Smoking causes cancer of the lung, heart disease, emphysema and pulmonary fibrosis.

Alcohol is found in 40% of one or the other drivers involved in a fatal accident. Alcohol causes head and neck cancer, cancer of the stomach and esophagus, cirrhosis of the liver and hepatoma leading to cancer of the liver and pancreatitis. I submit that these cancers having external causes are in principle therefore preventable.

Washington seems schizophrenic. The government is subsidizing tobacco growers and then spending innumerable federal dollars through Medicare and Medicaid to subsidize every hospital in the United States for the care of thousands of patients suffering from preventable injuries and preventable disease.

I submit:

- 1. Cease subsidizing tobacco growers;
- 2. Greatly increase excise taxes on tobacco and alcohol;
- 3. Outlaw Saturday-night handguns. Voila!

- 1. Saving thousands of lives from carnage on the highway;
- 2. Decreasing billions of dollars of federal money spent for health care of preventable injuries and preventable disease

Why not?—James Y. McCullough, Sr., M.D., New Albany, Ind.

Light at the End of the Tunnel

Guest Editorial

After many hurdles, lengthy negotiations and some compromises, the WAX-MAN/HATCH BILL cleared the House of Representatives by a vote of 362-0. Earlier, the Senate had passed a very similar bill. The two versions are so close that the differences can be worked out without calling a conference committee between the two chambers of the Congress. The President has signed it.

Essentially, this bill, will allow more incentive for research-oriented major drug houses to discover, develop and market more new drugs. To achieve this, a minimum five year monopoly will be granted to the patent holder. The drugs introduced between 1982 and the time when the bill becomes a law will receive at least 10 years guaranteed marketing. This provision will affect 56 drugs made by 30 companies. The FDA has been prohibited to approve a generic version of such drugs for marketing.

On the other side of the coin, the "Drug Price Competition and Patent Term Restoration Act of 1984"—the official name of Waxman/Hatch Bill—will make it easier for the generic houses to get their drug products approved through the ANDA route. In a span of 10 years, 1981 thru 1990, almost all of the high volume drugs will lose their patent protection. In fact this year alone three high volume benzodiaephenes have lost their patent. The original beta-blocker along with the fastest selling oral anti-diabetic and a major antihypertensive have also come off patent.

Generic drug houses have wasted no time in getting their products approved by the FDA and are ready for market entry. Under the Waxman/Hatch Bill, this phenomenon will become more common. What is gratifying to us is the political maturity of our profession and its manufacturing arm. In any legislative process, there is a certain amount of "give and take" by both parties. Gone are the days of "All or nothing at all." The brand name drug industry deserves a pat on the back to have adopted a more compromising position in getting the bill passed.

The restoration of patent, even if it is less than what was hoped for, offers an opportunity to major drug firms to market newer and better products. In a free market economy a monopoly of any kind can pose some danger. But the purpose of the patent law is to encourage the public disclosure and use of an innovation. Therefore, to a patent holder, monopoly is granted by law rather than exercised by market power. This is important to understand because without incentives for gain innovation will take a back seat.

Congratulations to all parties involved in getting this bill passed. In our opinion, it is in the American public's best interests.—"Action in Pharmacy" newsletter, Kansas City, Mo,

The Need for Blood

President Reagan has identified one of the greatest aids in modern medicine. At the same time he is calling on all eligible donors to assist in the acquisition and maintenance of supplies of blood in adequate quantity to support medicine's program for the treatment of accident victims and for the support of patients undergoing certain major operations. Over 15,000 donors are needed daily to meet the everyday need for blood and components.

Approximately 40% of the population are medically eligible to be donors. Less than 10% actually provide the blood needed for the entire population.

Copies of the Presidential Proclamation (see facing page) may be obtained from the American Blood Commission at rates varying from fifty cents for 1-10 copies to fifteen cents per copy for 101 or more copies. The address is 1117 N. 19th St., Suite 501, Arlington, Va. 22209.



THE WHITE HOUSE WASHINGTON

NATIONAL VOLUNTEER BLOOD DONOR MONTH

January 1985

WE AMERICANS have a long tradition of sharing what we have with those in need. Nowhere is that tradition more splendidly honored than in the gift of blood, which is literally the gift of life.

FOR A CHILD with cancer, a youthful accident victim, an older citizen whose kidneys have stopped functioning or who must undergo a major operation — for millions of Americans each and every year — life depends on the generosity of others. It depends on blood donors who willingly and selflessly provide their own blood so that others may live and thrive.

MEDICAL SCIENCE has made miraculous progress in disease prevention and treatment. We can now save lives that only a few years ago would have been lost to cancer and heart disease, to devastating accidents, and to the premature wearing out of vital organs and tissues. But we must never forget that much of this scientific gain would be useless if the suffering and the ill did not have access to the contribution that only people can make: the blood and blood products that still constitute the greatest life-saving miracle of all.

I HOPE PEOPLE EVERYWHERE will join me in saying a heartfelt thanks to our fellow countrymen and women who give their blood for the sake of others. And let me call on each of you to sign up for one of the greatest acts of charity that any human being can make — the gift of blood.

Ronald Ragan



These instruments were the best available at the turn of the century. So was our professional liability coverage for doctors. In fact, we pioneered the concept of professional protection in 1899 and have been providing this important service exclusively to doctors ever since.

You can be sure we'll always offer the most complete professional liability coverage you can carry. Plus the personal attention and claims prevention assistance you deserve. For more information about Medical Protective coverage, contact your Medical Protective Company general agent.

10:00

MEDICIN BROLEGAINE CONFULL

BOTER NEWS COLD CHOIN

Vernon E. Hoover, John J. Lindenschmidt, Philip R. Young Suite 237, 6100 North Keystone Avenue, P.O. Box 20576, Indianapolis, Indiana 46220, 317/255-6525 Robert B. Newell, Suite 265, 2260 Lake Avenue, Fort Wayne, Indiana 46805, 219/422-4783

BROWN THE BROWN PHARMACEUTICAL CO., INC.

2500 West Sixth Street, Los Angeles, CA 90057

For Full Prescribing Information, Please See PDR. PDR



Android 5 Buccal 10 Oral 25 Oral Methyltestosterone U.S.P. Tablets

ANDROID®/F

Fluoxymesterone U.S.P. Tablets, 10 mg.





"...Your financial security specialists are on call"

American Physicians Life believes a physician's financial security deserves specialized attention. That's why our products and services are designed with the doctor in mind. Our comprehensive portfolio of services, including life insurance, professional disability income coverage, qualified plans and tax-deferred annuities, is customized to meet your personal financial planning needs as well as those of your professional corporation.

Let American Physicians Life secure your financial planning program—that's our specialty!

For more information contact: Williams/Townsend Associates 8900 Keystone Crossing, Suite 500 Indianapolis, Indiana 46240 (317) 844-3119

Endorsed by the Indiana State Medical Association



Bates Drive, P.O. Box 281 Pickerington, Ohio 43147 Telephone (614) 864-3900 Toll-free in Ohio, 1-800-282-7515 Toll-free outside Ohio, 1-800-742-1275

CME QUIZ.

TO OBTAIN ONE HOUR OF CATEGORY 1 AMA CME CREDIT, answer the following questions by circling the correct answer on the answer sheet below. Complete and clip the application form and mail it to: Indiana University School of Medicine, CME Division, Fesler Hall 224, 1120 South Dr., Indianapolis 46223.

Childhood Sexual Abuse

CONTINUED FROM PAGES 11-18

- All of the following are appropriate antibiotics to treat vaginal/urethral gonorrhea in pre-pubertal child except:
 - a. spectinomycin IM
 - b. amoxicillin PO
 - c. procaine penicillin IM
 - d. benzathine penicillin G IM
- The first and most important step to the evaluation of a child sexual abuse victim is:
 - a. to perform the medical exam.
 - b. to involve the local authorities.
 - to recognize that child sexual abuse has occurred.
 - d. to notify local mental health agencies.
- 3. Physical findings suggestive of child sexual abuse include all except:
 - a. unexplained trauma as injury to external genitalia.
 - b. pregnancy particularly in a child under 13 years.
 - c. evidence of vaginal/urethral discharge in pre-pubertal child.
 - d. all of the above are correct.

- 4. A health professional interviewing an adolescent for "running away from home" for the first time should initially always consider the possibility of sexual abuse
 - a. true
 - b. false
- 5. All of the following have been mentioned as part of the physician's role in the evaluation of child victims except:
 - a. reporting of the above to the proper authorities.
 - attempting to determine innocence or guilt of the accused perpetrator
 - c. testifying in court.
 - d. hospitalizing victim if evaluation warrants a need for a "safe place."
- Evaluation and treatment of child abuse victims and their families require a multidisciplinary approach. Members of that core team should include a:
 - a. social services representative.
 - b. physician.
 - c. legal representative from sheriff's or prosecutor's office.

- d. all of the above.
- Concepts of child sexual abuse and criminal rape are very different. One of the typical distinguishing characteristics of a child molester is:
 - a. the need to display dominance, even violence toward his victim(s).
 - b. the presence of overt psychosis.
 - c. "access" to child established through friendship and trust.
 - d. the ability to establish successful heterosexual relationships.
- 8. Detection of sexual abuse of child male victim is infrequently reported because:
 - a. rates of occurrence are very low.
 - b. males are less likely to discuss any sexual encounters with adults.
 - c. boys are not the "recipients" of sexual attention.
 - d. only females can be sexually abused.
- 9. Characteristics of pharyngeal GC include all of the following except:
 - a. usually asymptomatic.
 - b. mode of transmission through primarily oral-genital contact.
 - one percent of the throat cultures may remain positive after "appropriate" therapy.
 - d. procaine penicillin IM may be used to treat.
- 10. Child sexual abuse did not become a problem until the last two decades with advent of "sexual liberalization."
 - a. true
 - b. false

DECEMBER CME QUIZ Answers

Following are the answers to the CME quiz that appeared in the December 1984 issue: "Breast Cancer 1984: State of the Art," by George W. Sledge Jr., M.D.

1. c 6. a

1.	C	6.	a
2.	a	7.	C
3.	d	8.	d
4.	b	9.	¢
5.	c	10.	a

Answer sheet for Quiz: (Childhood Sexual Abuse)

 1. a b c d
 6. a b c d

 2. a b c d
 7. a b c d

 3. a b c d
 8. a b c d

 4. a b
 9. a b c d

 5. a b c d
 10. a b

1 wish to apply for one hour of category 1 AMA Continuing Medical Education credit through the I.U. School of Medicine. 1 have read the article and answered the quiz on the answer sheet above. 1 understand that my answer sheet will be graded confidentially, at no cost to me, and that notification of my successful completion of the quiz (80% of the questions answered correctly) will be directed to me for my application for the Physician's Recognition Award of the American Medical Association. 1 also understand that if 1 do not answer 80% of the questions correctly, 1 will not be advised of my score but the answers will be published in the next issue of INDIANA MEDICINE for my information.

Name (please print or type)

Address

Identification number (found above your name on mailing label)

Signature

To be eligible for this month's quiz, send your completed, signed application before Feb. 10, 1985 to the address appearing at the top of this page.

NEWS NOTES

MINET Offers Immediate Access to Medical Issues

Physicians interested in keeping abreast of the latest issues in health promotion and disease prevention can now obtain, electronically, excerpts from Public Health Reports of the U.S. Public Health Service.

This accessibility has been made possible by the newly instituted Surgeon General's Information Service, which is available through the GTE Telenet Medical Information Network (MINET).

Through the American Medical Association's AMA/NET® services, MINET offers physicians almost instant accessibility to medical information. Equipment needed includes a computer terminal and a telephone.

MINET subscribers can obtain the public health excerpts by using the electronic bulletin board feature of the MINET "Med-Mail" service. By the same means, subscribers can send messages to C. Everett Koop, M.D., surgeon general, U.S. Public Health Service.

For further information on the Surgeon General's Information Service, contact the National Health Information Clearinghouse, P.O. Box 1133, Washington, D.C. 20013—toll-free, 800-336-4797.

To subscribe to MINET, contact GTE Telenet at 800-368-4215.



"I was just diagnosing my own eye-hand coordination."

New ISMA Members

The following physicians were welcomed in October as new members of the Indiana State Medical Association:

Elton Amos, M.D., Fort Wayne, family practice.

Harold G. Baker, M.D., New Palestine, family practice.



Albert N. Bruno, M.D., Muncie, urological surgery.

Stuart H. Coleman, M.D., New Albany, gastroenterology.

Carl E. Dillman Jr., M.D., New Albany, cardiovascular diseases.

Robert J. Kinsey Jr., M.D. Indianapolis, obstetrics and gynecology.

Shannon S. Lamb, M.D., Evansville, therapeutic radiology.

J. David Payne, M.D., New Albany, family practice.

Rex H. Ragsdale, M.D., Evansville, family practice.

Timothy E. Schmitt, M.D., New Albany, ophthalmology.

John Parker Smith, M.D., Bluffton, radiology.

Ronald A. Vierk, M.D., New Castle, anesthesiology.

Martin Wagner, M.D., Anderson, anesthesiology.

Khalil Wakim, M.D., Anderson, general surgery.

Life Line Expanded

Methodist Hospital of Indiana, in Indianapolis, has expanded its aeromedical services by adding two fixedwing aircraft to the highly successful Life Line helicopter service.

All aircraft are equipped with medical supplies and are staffed with physicians and nurses.

Prescription Drug Tips

The American Academy of Family Physicians has announced an updated consumer prescription drug information program. "Drug Use Education Tips" (DUET) is designed to aid AAFP members in educating their patients about prescription medications.

In cooperation with the U.S. Pharmacopeial Convention (USP), the academy has chosen 290 monograph abstractions from the 1984 USP "Advice for the Patient." The monographs are printed in looseleaf form, three-hole punched, and suitable for photocopying.

AIDS Research

Abbott Laboratories has received approval from the FDA to begin clinical trials for a diagnostic test to screen blood for antibodies to H1LV-III, the virus believed to be the cause of A1DS.

Abbott was to apply last month for final FDA approval of the test.

Help for Relapsed Alcoholics

Koala Centers, Indiana's leading hospitals for the treatment of alcoholism and drug abuse, have begun a new program for alcoholics who "slip" or relapse into drinking after treatment.

The Critical Care Rehabilitation Program started Nov. I at the Koala Center in Lebanon, Ind. It is for those who come to Koala through employer, union, family or self referral because alcohol or drugs have again caused problems in their lives.

The program emphasizes separate groups for relapsed patients. Within this group structure, patients learn to deal with relapses, peers, families and employers.

Patients for the Critical Care Program are admitted to detoxification. An ongoing bedside watch manned by program patients makes new members aware that the group is special and different—and that loving care is expressed in the form of "tough love."

The program will spread to other Koala Centers as conditions permit. For information, the toll-free number in Indiana is 1-800-622-4711.

For the Asking . . .

• "Wood as Home Fuel: A Source of Air Pollution," a pamphlet published by the American Council on Science and Health (ACSH), explains the scientific studies on the subject. Wood-burning stoves produce substantial amounts of and a variety of air pollutants, which can create a major impact on the quality of air in communities; fireplaces produce less pollutants than stoves from the same amount of fuel, probably because they have a better supply of oxygen. For a copy of the pamphlet, send a selfaddressed, stamped (37¢ postage), business-size envelope to Wood as Fuel Report, ACSH, 47 Maple St., Summit, N.J. 07901.

• "Childbirth Today: Where and How to Have Your Baby" is the subject of Public Affairs Pamphlet No. 628. The pamphlet, written by Beverly Jacobson, a free-lance writer on social issues and on medical, family and women's concerns, discusses the various options for delivery. Natural childbirth, nutrition and prenatal care and comparisons of various options are covered. \$1. Write Public Affairs Committee, 381 Park Avenue South, New York, N.Y. 10016.

• The National Easter Seal Society has published two booklets by Harold H. Wilke, internationally known minister, author and disability rights advocate who was born without arms. "Using Everything You've Got" discusses alternatives the author uses for the chores of daily living; "Reflections on Managing Disability" shares the "coping" strategies the author adopted to manage or transcend the pain and frustration. Dr. Howard Rusk of the Institute of Rehabilitation Medicine recommends the booklets. \$1 each. Write National Easter Seal Society, 2023 W. Ogden Ave., Chicago 60612.

• The new 125-page directory of A-V presentations available from Norwich Eaton Pharmaceuticals includes 18 new presentations added to the company's library during the past two years. With those additions, 237 different presentations are available on a free-loan basis or

for purchase. All Norwich Eaton audiovisuals qualify for up to 22 hours of Category 5a credit with the AMA. No charge. See the company's representative or write to Norwich Eaton, 17 Eaton Ave., Norwich, N.Y. 13815.

New Test for Alzheimer's

Positron emission tomography (PET), when used to observe glucose metabolism in the brain, has accurately differentiated persons with Alzheimer's disease from normal elderly subjects.

A California VA Medical Center has examined the brains of patients with Alzheimer's disease, as well as the brains of normal subjects. The early findings indicate that the brains of Alzheimer's patients have reduced glucose metabolism in the temporal parietal cortex. The normal patients showed a substantially higher rate of glucose metabolism which was equal to the rate of metabolism in the frontal cortex.



YOU CAN KEEP THEM IN BALANCE — YOUR FAMILY LIFE AND YOUR MEDICAL PRACTICE

We'd like to help you spend more time with your family, yet receive professional satisfaction from your medical practice. As a member of the Air Force health care team, you'll be able to participate in our group practice concept which will free you of most of your administrative duties.

Air Force benefits are also very attractive. You and your family will enjoy 30 days of vacation with pay each year, plus many more Air Force advantages. Contact:

Capt. Scott Simpson or TSgt. Steve Beecher 317-269-6164 or 6354 collect

A great way of life

NEWS NOTES

Here and There . . .

Dr. Geraldine M. Peilfer, a Hammond anesthesiologist and medical director of respiratory therapy at Indiana University Northwest, has been presented the Stritch Medal by Loyola University, from which she earned the M.D. degree in 1949.

Dr. Paul W. Runge, a Richmond internist, has been presented the first Paul S. Rhoads Humanity in Medicine Award by Reid Memorial Hospital.

Dr. C. Richard Yoder, a retired Elkhart pediatrician, has received the Golden Apple Award from the Elkhart Teachers Association; he helped start the poison control center at Elkhart General Hospital and served as the first director of the local Child and Youth Health Center.

Dr. Charles A. Bonsett, an Indianapolis neurologist and muscular dystrophy researcher, has been presented the Butler Medal by the Butler University Alumni Association for distinguished service and achievement.

Dr. Paul F. Muller, medical director of St. Vincent Hospital, Indianapolis, has been presented the 1984 Respect Life Award by the Catholic Archdiocese of Indianapolis.

Five physicians have been named fellows of the American Academy of Family Physicians. They are Dr. Irving Cohen of Plainfield, Dr. Keven W. Dodt of Logansport, Dr. Paul N. Houston of Brazil, Dr. Richard G. Huber of Bedford, and Dr. Timothy J. Porsche of Elkhart.

RIM RIM

"I'd like a second opinion—do you have another computer?"

Dr. Jerry R. Myers of Noblesville discussed laser eye surgery at a November meeting of the Riverview Hospital Respiratory Health Club.

Dr. Bruce P. Grossnickle of Warsaw discussed "Vision for the Future" at a fall meeting in Plymouth of the Marshall County chapter, American Diabetes Association.

Dr. Michael T. Stack, a Danville internist/rheumatologist, lcd an arthritis selfhelp workshop in November for the Hendricks County Senior Center.

Dr. Thomas A. Mabel of Noblesville discussed menopause in November during a Riverview Hospital Women's Luncheon Meeting.

Dr. Mark T. Kinne of Bluffton has been named a fellow of the American Academy of Pediatrics.

Dr. John C. Spellmeyer of Richmond has been named a fellow of the American College of Radiology.

Dr. Robert W. Clausen, a South Bend internist, has been elected to fellowship in the American College of Physicians.

Dr. Robert D. Aiello of Evansville has been named a diplomate of the American Board of Family Practice.

Dr. Jeffry C. Rendel of Jasper participated this fall in a three-week arthritis public education program sponsored by Memorial Hospital of Floyd County.

Dr. Frank D. Byrne III, a Fort Wayne pulmonologist, participated in an October adult asthma seminar at Parkview Memorial Hospital.

Dr. Ronald J. Beahm of Anderson discussed childhood asthma at a public health forum in October at St. John's Medical Center, Anderson.

Dr. Alfred A. Serritella of LaPorte discussed inflammatory bowel disease at an October meeting of the Crohns/Colitis Mutual Help Group, LaPorte Hospital.

Dr. Harry A. Mahannah, a Muncie psychiatrist, was guest speaker at the November session of the "Together We Learn to Cope" program sponsored by the Delaware County Mental Health Association.

Dr. Jeffery C. Hagedorn, a Columbus neurologist, addressed the November meeting of the Alzheimer's Disease Support Group at Bartholomew County Hospital.

Dr. John W. Brown, an I.U. School of Medicine surgeon, addressed the Clinical Congress of the American College of Surgeons in October; he explained his research on mechanical heart valves for children afflicted with a blocked aorta.

The American Academy of Ophthalmology presented honor awards in recognition of outstanding achievement in eye care during its annual meeting in November. Dr. T. F. Schlaegel Jr. of Indianapolis received a Senior Honor Award, while Dr. Fred M. Wilson II of Carmel and Dr. Richard K. Parrish of Decatur each received Regular Honor Awards.

Dr. Michael W. French of Indianapolis presented an article entitled "Measurement of Excitation-Contraction Time Intervals in Human Malignant Hyperthermia" at the annual meeting of the American Association of Electromyography and Electrodiagnosis in Kansas City, Mo., Sept. 22.

Dr. Ronald Hamaker of Indianapolis was guest lecturer at Ohio State University Medical Center for a seminar on Facial Reconstructive Surgery, Nov. 8-11; he discussed "Regional Flaps," "Flap Conservation," "Sternomastoid Myocutaneous Flaps" and "Autogenous Mandibular Grafts."

Indiana Psychiatric Society Gets Executive Secretary

The Indiana Psychiatric Society has announced that Mrs. Sally L. Morton of Indianapolis has been selected for the society's newly created executive secretary position.

Mrs. Morton, whose husband, Dr. Philip M. Morton, is a past president of the society, holds a B.B.A. degree from the University of Toledo. She is a past president of the Marion County Medical Society Auxiliary and a past secretary of the ISMA Auxiliary. She is available at (317) 293-4770 to triage general telephone calls to society officers.

Current officers are Dr. Philip M. Coons, president, (317) 634-8401; Dr. William C. Shriner, president-elect, (812) 232-3633; Dr. Cherryl G. Friedman, secretary, (317) 773-7711; and Dr. Andrew L. Morrison, treasurer, (317) 872-6246.

Physician Recognition Awards –



The following ISMA physicians are recent recipients of the AMA's Physician Recognition Award. This award is official documentation of Continuing Medical Education hours earned, and is acceptable proof in most states requiring CME in re-registration that the mandatory hours of CME have been accomplished.



Ahlbrand, Roland C., Fort Wayne Aiello, Robert D., Plainfield Allen, George S., Georgetown Alonso, Robert J., Zionsville Aluning, Pastor D., Rochester Andrews, Frederick B., Columbus Asher, James W., Indianapolis Bankoff, Milton L., Michigan City Barrett, Warrick L., Fort Wayne Batt, David S., Indianapolis Bejec, Louis C., Valparaiso Bhagwandin, Harry O., Indianapolis Bonsett, Charles A., Indianapolis Boonjarern, Sampanta, Lowell Broadie, Thomas A., Indianapolis Brown, Stewart D., Albany Buehner, Donald F., Evansville Chaudhry, Aftab A., New Albany Choslovsky, Sydney, Gary Conrad, Henry W., Lawrenceburg Crates, Gordon C., Denver Cronin, H.J., Indianapolis Dallas, Fred R., Indianapolis Das, Amal K., Kokomo Deogracias, Francisco D., Edinburg Domingo, Ricardo C., Greensburg Domke, Lewis R., Washington Dyken, Mark L., Indianapolis Ebbinghouse, Tom H., Richmond Eble, John N., Indianapolis Ellis, William N., Indianapolis Elzik, Ekram K., Indianapolis Foley, Phillip D., Middletown Frieske, David A., Valparaiso Gentile, Jonathan P., Fort Wayne Germano, Alan F., Bloomington Godsey, Phillip D., Fort Wayne Gordon, O.T., Indianapolis Haggard, David B., Plainfield Hansen, Nikolas F., Valparaiso Hastings, Hill, Indianapolis Herring, Malcolm B., Indianapolis Hoff, Kenneth E., Rochester House, Jerry L., Indianapolis Huber, Richard G., Bedford Jenkins, John E., Indianapolis Johns, Janet S., Lafayette

Johnson, Charles W., Indianapolis Johnston, Richard M., Fort Wayne Jones, Thomas A., Indianapolis Kelly, Michael J., Vincennes Kight, Jerry L., Indianapolis King, Charles R., Anderson Koenig, Robert L., Valparaiso Kohr, Roland M., Terre Haute Krabill, Willard S., Goshen Krueger, John E., South Bend LaSalle, Robert M., Wabash Lawrence, James M., Indianapolis Lee, John W., Fort Wayne Lindgren, Ivan T., Aurora Manders, Karl L., Indianapolis Manning, George C., Fort Wayne Mapalad, Jose D., Munster Martino, Robert S., Merrillville Mason, Lester M., Terre Haute Maya, Gaston N., Jeffersonville McClain, Debra R., South Bend Mealey, John, Indianapolis Metzger, Philip P., Fort Wayne Migliorino, Robert R., Fort Wayne Miyamoto, Richard T., Indianapolis Mohrman, Michael S., Fort Wayne Moore, Thomas O., Indianapolis Morrison, George G., Lawrenceburg Moses, Robert E., Worthington Mouser, Robert W., Indianapolis Muhler, Joseph C., Fort Wayne Musngi, Luciano P., Pendleton Nazer, Husam M., Jeffersonville Nuval, Augusto J., Terre Haute Paris, John M., New Albany Peiffer, Geraldine M., Hammond Peters, James L., Shelbyville Pierce, Gene S., Floyds Knobs Poolitsan, George C., Bloomington Premuda, Franklin F., Hammond Raju, M.V., Greencastle Reidy, James E., Mishawaka Ress, Gene E., Tell City Reszel, Paul A., Fort Wayne Roig, Jose H., Merrillville Roller, Mac C., Franklin Sellers, Francis M., South Bend

Sheehan, E.G., Evansville Shelton, N.P., Vincennes Shugart, Robert R., Fort Wayne Siebenmorgen, Paul, Terre Haute Slama, Thomas G., Indianapolis Smith, Anthony A., Kokomo Sneary, Max E., Avilla Snyder, David C., Greenfield South, Dale R., Elkhart Spain, W.T., Evansville Stilwell, Barbara M., Indianapolis Tanner, Richard R., Indianapolis Taylor, Millard R., Howe Templin, David B., Lowell Thephasdin, Jiroj, Crown Point Thorstad, Craig K., Indianapolis Van Meter, C.P., Indianapolis Vicar, Andrew J., Indianapolis Wallace, John M., Fort Wayne Wilhelmus, Gilbert M., Evansville Young, Frederic D., Munster

News from the AMA

- Direct advertising of prescription drugs to the public was opposed by two-thirds of the respondents in a public opinion poll conducted by the AMA. When the question was addressed to physicians, 84% expressed opposition and 81%—members and non-members alike—said the AMA should take a highly visible public stand on direct advertising proposals. The AMA House of Delegates has taken a position against direct advertising of prescription drugs.
- The number of women physicians increased 152.9% between 1970 and the end of 1982—from 25,401 to 64,247—according to the AMA Physician Masterfile. In the two-year period between 1980 and 1982, there was an 18.4% increase. The largest number of women physicians practiced internal medicine (10,832), pediatrics (10,192), and psychiatry (6,454).

INTERESTED IN AUTO LEASING?

Get the facts, leasing will save \$1000s over buying. All Makes Auto Leasing, Inc. has the equipment and know-how to show you EXACTLY where you save. So call today for a quote on the car of your choice. Besides, we lease for less, always have, always will.

Approved Credit Required

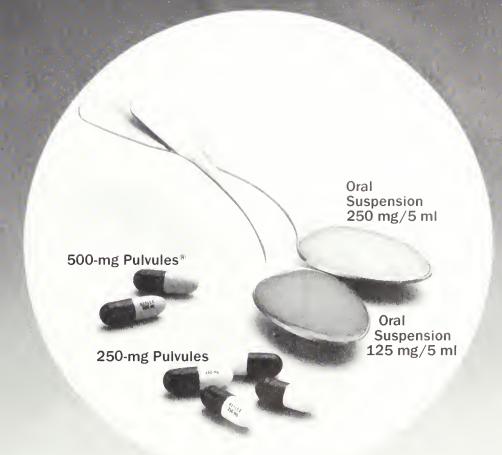
Medical Society and Hospital References Available On Request

ALL MAKES AUTO LEASING, INC.

1118 South Rangeline Road, Carmel, Indiana 46032

Telephone 317/844-2171

Easy To Take



Keflex[®] cephalexin

Additional information available to the profession on request.



Dista Products Company
Division of Eli Lilly and Company
Indianapolis, Indiana 46285
Mfd. by Eli Lilly Industries, Inc.
Carolina, Puerto Rico 00630

CARDIOLOGY DIAGNOSTIC AND INTERVENTIONAL

WILLIAM K. NASSER, M.D.

MICHAEL L. SMITH, M.D. DENNIS K. DICKOS, M.D.

CASS A. PINKERTON, M.D. JOHN D. SLACK, M.D.

JAMES W. VAN TASSEL, M.D. CHARLES M. ORR, M.D.

JANE HOWARD, M.D.

CARDIOLOGY AND CARDIAC CATHETERIZATION **FCHOCARDIOGRAPHY** EXERCISE STRESS TESTING CORONARY ANGIOPLASTY NUCLEAR CARDIOLOGY PACEMAKER SURVEILLANCE HOLTER MONITORING

ST. VINCENT PROFESSIONAL BUILDING

SUITE 413 8402 HARCOURT ROAD INDIANAPOLIS, INDIANA 46260

PHYSICIAN REFERRAL ONLY TELEPHONE (317) 875-9316 (TOLL-FREE) 800-732-1482 DAY OR NIGHT

PLASTIC SURGERY

ALCOHOLISM TREATMENT

PLASTIC & HAND SURGERY CLINIC, INC. 1944 N. Capitol Ave. Indianapolis 46202

"An office surgery facility"

HAROON M. QAZI, M.D., F.A.C.S.

Diplomate, American Board of Plastic Surgery
Phone: 317-923-4822 317-926-3466

PSYCHIATRY

Davis Psychiatric Clinic, Inc.

1431 North Delaware Street Indianapolis, Indiana 46202 317/634-9930

James R. Davis, M.D. R. Peter Mohlman, M.D. Larry M. Davis, M.D. George McAfee, M.D.

Comprehensive Child, Adolescent, Adult Psychiatry Sexual Therapy, Crisis Intervention Alcohol and Substance Abuse

Emergency Psychiatric Availability 24 Hours a Day

JOHN J. SAALWAECHTER, M.D.
BEN H. PARK, M.D.
RITCHIE COONS, M.D.
DAVID L. PHILLIPS, M.D.
MICHAEL J. CHADWICK, M.D.
DAVID L. GREGORY, M.D.
JAMES R. DAVIS, M.D.
LARRY M. DAVIS, M.D.
Individualized Treatment
for Alcoholism/Drugs

Men - Women - Adolescents



1711 Lafayette Avenue Lebanon, Indiana 46052 (317) 482-3711

2223 Poshard Drive Columbus, Indiana 47202 (812) 376-1711

8925 N. Meridian St. Indianapolis, Indiana 46260 (317) 848-7666

4333 E. Third St. Bloomington, Indiana 47401 (812) 333-3012

428 S. Washington St. Suite 347 Marion, Indiana 46952 (317) 668-7067

OPHTHALMOLOGY

George E. Waters, Jr., M.D.

Diplomate, American Board of Ophthalmology

Diseases and Surgery of the Eye 9100 Meridian Square

50 East 91st Street

Indianapolis, Indiana 46240 317-844-6180

Douglas Bullington, M.D.

Program Director



COUNTERPOINT CENTER

at Valle Vista Hospital 898 E. Main Street Greenwood, IN 46142 317/887-1348

- Free evaluation and intervention
- · Adult & Adolescent Treatment Services
- 24 hours-a-day

CARDIOLOGY

INDIANAPOLIS CARDIOLOGY ASSOCIATES, INC.

Robert E. Edmands, M.D. Samuel M. Hazlett III. M.D.

Abdel A. Zeni, M.D.
Don B. Ziperman, M.D., F.A.C.C.

CARDIOLOGY AND CARDIAC CATHETERIZATION
ECHOCARDIOGRAPHY
EXERCISE STRESS TESTING
CORONARY ANGIOPLASTY
PACEMAKER SURVEILLANCE
HOLTER MONITORING

1315 North Arlington Avenue Suite #100 Indianapolis, Indiana 46219 (317) 359-3501

PHYSICIAN REFERRAL ONLY

1500 Albany Street Suite #912 Beech Grove, Indiana 46107 (317) 786-9211

PERIPHERAL VASCULAR SURGERY

AUSTIN L. GARDNER, M. D., F.A.C.S. MALCOLM B. HERRING, M. D., F.A.C.S.

DANIEL R. LEGRAND, M.D.

ARE PLEASED TO ANNOUNCE THE ASSOCIATION OF DAVID L. MADISON, M.D.

FOR THE PRACTICE OF VASCULAR SURGERY

AT 8402 HARCOURT ROAD, SUITE 613

> INDIANAPOLIS, INDIANA 46260 OFFICE HOURS BY APPOINTMENT TELEPHONE (317) 872-4129

COLON AND RECTAL SURGERY

W. M. KENDRICK, M.D. G. A. DONNALLY, M.D. R. JAMES WILSON, M.D.

Certified: International Board of Proctology

Practice limited to Colonscopy, Treatment and Surgery of Rectal Diseases

Kendrick Memorial Hospital, Inc. Mooresville, Indiana Tel: 317-831-1160

(JCAH Accredited)

INTERNAL MEDICINE

CLINICAL, ANATOMIC PATHOLOGY

NEPHROLOGY & INTERNAL MEDICINE, INC.

Thomas Wm. Alley, M.D., FACP George W. Applegate, M.D. Charles B. Carter, M.D. William H. Dick, M.D., FACP

I.D., FACP Theodore F. Hegeman, M.D.
M.D. Douglas F. Johnstone, M.D.
D. Wendy L. Kindig, M.D.
FACP LeRoy H. King, Jr., M.D., FACP
Mary A. Margolis, M.D.

1633 N. Capitol, #722, Indianapolis 46202 Ph: 317-926-0757

By Physician Referral

Answering Service 926-3466

CLINICAL NEPHROLOGY, RENAL TRANSPLANTATION, HEMO-DIALYSIS, PERITONEAL DIALYSIS, HYPERTENSION, FLUID AND ELECTROLYTE IMBALANCE, CRITICAL CARE.

MERIDIAN MEDICAL GROUP, INC.

3130 North Meridian Street P. O. Box 88273 Indianapolis, Indiana 46208 (317) 927-1221

CARDIOLOGY

Richard M. Nay. M.D. 927-1212
Warren E. Coggeshall, M.D. 927-1217
Richard R. Schumacher, M.D. 927-1247
Martin R. See, M.D. 927-1299

GASTROENTEROLOGY

 Robert D Pickett. M D
 927-1242

 Lee G Jordan. M D.
 927-1263

 Martin P Meisenheimer. M D 927-1220

 John C Kohne. M.D
 927-1295

HEMATOLOGY-ONCOLOGY

James E Schroeder. M D 927-1245 Frank A Workman, M.D 927-1269

INFECTIOUS DISEASES

Michael Zeckel, M.D. 927-1273 Thomas G Slama, M.D.,8424 Naab Road Robert L Baker, M.D. 927-1283

PULMONARY DISEASES

Michael R Niemeier, M.D. 927-1310

INTERNAL MEDICINE

Hunter A Soper, M D 327-1253

Douglas H White, Jr., M D 327-1256

B T Maxam, M D 927-1239

Michael B DuBois M D
GERIATRICS 927-1202

Patricia K Hendershot, M D 927-1240

Douglas J Moeler, M D 927-1278

Timothy J Story, M D 927-1300

John F Schaefer Jr., M D 927-1300

METABOLISM & ENDOCRINOLOGY

William M. Holland, M.D. 927-1235

NEUROLOGY EEG & EMG LAB

 Norman W Oestrike, M D
 927-1359

 Charles E Rehn, M.D
 927-1377

 John R Scott, M D
 927-1350

 Bradford R Haie, M D
 927-1274

 Robert J Alonso, M D
 927-1340

 Michael W French, M D
 927-1343



The Medical Laboratory

of Drs. Thornton Haymond - Costin- Buehl Bolinger - Warner McGovern - McClure - Hooker

5940 West Raymond Street, Indianapolis, Indiana 46241

Phone: (317) 248-2448

COMPLETE LABORATORY SERVICES

Serving Indiana Since 1947

- MICROBIOLOGY
- SEROLOGY
- CHEMISTRY
- SURGICAL PATHOLOGY
- HEMATOLOGY
- COAGULATION
- FORENSIC
- CYTOLOGY
- EKG
- VETERINARY PATHOLOGY
- TOXICOLOGY
- COURIER SERVICES



CLINICAL AND ANATOMIC PATHOLOGY

Central Testing Facility: 5940 W. Raymond St. For information and details phone 248-2448

RHINOLOGY

By appointment only

317-359-9636

CARL B. SPUTH, M.D.

Diseases & Surgery of Nose & Sinuses Plastic Surgery of the Nose Nasal Allergy, Rhinomanometry

5506 E. 16th St.

Indianapolis 46218

OTOLOGY

MERIDIAN OTOLOGY LAB

Is Pleased to Announce the Opening of our New Office Providing *Complete Audiometric Evaluations

*Hearing Aid Evaluations and Dispensing
*Brainstem Auditory Evoked Response
*Visual Evoked Response
*Electronystagmography

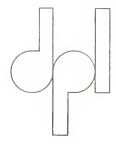
Richard Kurtz, M.D. Jack Summerlin, M.D. Kathleen Corbin, M.A., CCC-A Audiologist

3266 N. Meridian Street Indianapolis, Indiana Suite B12 (317) 925-7077

DERMATOPATHOLOGY

DERMATOPATHOLOGY LABORATORY

Larry J. Buckel, M.D. Robert M. Hurwitz, M.D. Howard R. Gray, M.D. William B. Moores, M.D.



Diplomates of the American Board of Dermatology and Dermatopathology Specializing in Inflammatory Skin Diseases and Neoplasms of the Skin

9202 North Meridian Street Suite 215 Indianapolis, Ind. 46260 (317) 843-2204

Mailers and Courier Service Available

ONCOLOGY—HEMATOLOGY

INDIANA ONCOLOGY-HEMATOLOGY CONSULTANTS



Byram Gates Middleton House, listed on the National Register of Historic Places 1828 North Illinois Street Indianapolis, Indiana 46202

ADULT ONCOLOGY - HEMATOLOGY

Laurence H. Bates, M.D., William M. Dugan, Jr., M.D., Redmond P. Hogan, III, M.D., Gregory W. Smith, M.D.

PEDIATRIC ONCOLOGY — HEMATOLOGY

Deborah S. Provisor, M.D.

Are pleased to announce the association of

NEIL E. IRICK, M.D.

INTERNAL MEDICINE/HOSPICE CARE

Telephone 317-927-5770 24 hours TOLL FREE: 1-800-ONC-HEME (662-4363)

Attention Indiana Physicians

The *Physicians' Directory* is the most ethical and professional method of announcing specialty practice. It is also the most effective medium for listing office location, office hours, and telephone number for the convenience of colleagues in referring patients.

The title of diplomate of a specialty examining board, a requirement for admission to the *Directory*, offers its assurance of qualifications, whether listed or not.

Family physicians may announce office schedules that are reciprocally staggered in order to provide access to evening and weekend and holiday medical service.

In addition to providing benefits to physicians, the *Directory* is a practical means of providing financial support for INDIANA MEDICINE

All diplomates of the ISMA are invited to enter a professional card in the *Directory*



THE INDIANA MEDICAL FOUNDATION, INC. 3935 North Meridian Street Indianapolis 46208

A foundation for charitable, educational, and scientific purposes, organized by the ISMA as an endowment fund to support the educational mission of the Association and INDIANA MEDICINE.

Bequests, legacies, devises, transfers or gifts to the Foundation or for its use are deductible for federal estate and gift tax purposes, in accordance with the Internal Revenue Code.

The Foundation is managed by a board of directors that comprises the members of the ISMA Executive Committee. At present, proceeds from the Foundation investments are awarded to INDIANA MEDICINE to further the continuing medical education program.

Memorial contributions made to the Foundation in lieu of flowers will be acknowledged by the secretary in a letter to the family of the deceased.

> "for religious, charitable, scientific, literary or educational purposes"

LICE CONTROL OF CONTRO

OBITUARIES.

Robert J. Morrow, M.D.

Dr. Morrow, 62, a Bedford physician, died Nov. 6 at his home.

He was a 1955 graduate of Indiana University School of Medicine and was a Marine Corps veteran of World War II.

Dr. Morrow was well known in the Bedford area as an amateur telescope maker. In recent years he had developed an interest in steam engines and for the past four years had been at work on a locomotive that was nearly completed at the time of his death.

Maurice V. Kahler, M.D.

Dr. Kahler, 90, a retired Indianapolis and Star City general practitioner, died Nov. 11 in a Winamac nursing home.

He was a 1919 graduate of Indiana University School of Medicine and was a Navy veteran of World War II.

Dr. Kahler, a member of the American Academy of Family Physicians, retired from practice in 1982. He was a member of the tSMA Fifty Year Club.

Joseph L. Guckien, M.D.

Dr. Guckien, 60, an Evansville otolaryngologist, died Oct. 4 at St. Mary's Medical Center, Evansville.

He was a 1948 graduate of the Medical College of Wisconsin, Milwaukee, and was an Army veteran of World War H and the Korean War.

Dr. Guckien was a diplomate of the American Board of Otolaryngology.

Robert W. Phares, M.D.

Dr. Phares, 77, a retired Kokomo general practitioner and anesthesiologist, died June 6, 1984.

He was a 1940 graduate of Indiana University School of Medicine.

Dr. Phares was a former president of the Howard County Medical Society.

C. J. O'Donovan, M.D.

Dr. O'Donovan, 63, an Elkhart physician formerly employed by Miles Laboratores, died July 26, 1984.

He was a 1945 graduate of New York University School of Medicine and served in the Army immediately after World War II.

Dr. O'Donovan specialized in internal medicine and pathology. He was a member of the American Diabetes Association.

W. Glenn Hunsberger, M.D.

Dr. Hunsberger, 66, a radiologist at the Arnett Clinic in Lafayette, died Sept. 30 at his home.

He was a 1943 graduate of the University of Cincinnati College of Medicine and served in the Navy during World War II.

Dr. Hunsberger, who joined the Arnett Clinic in 1950, was a diplomate of the American Board of Radiology and a fellow of the American College of Radiology.

Edward B. Ruschli, M.D.

Dr. Ruschli, 100, a Lafayette area physician more than 70 years, died Oct. 30 at St. Elizabeth Hospital.

He was a 1906 graduate of New York University School of Medicine and was an Army veteran of World War I.

Dr. Ruschli began his medical career in general practice and obstetrics and later became a surgeon. He was a fellow of the American College of Surgeons. At one time he estimated he had delivered about 100 babies a year; one of those, Mr. James Riehle, mayor of Lafayette, presented Dr. Ruschli with a Distinguished Lafayette Citizen Award during a reception marking his 100th birthday last May 19.

Leon T. Cox, M.D.

Dr. Cox, 84, a retired Richmond general practitioner, died Oct. 7.

He was a 1926 graduate of Case Western Reserve University School of Medicine, Cleveland.

Dr. Cox was a member of the Fifty Year Club of American Medicine and of the ISMA Fifty Year Club.

Robert W. Turgi, M.D.

Dr. Turgi, 63, a Merrillville otolaryngologist, died Nov. 23 at St. Anthony Hospital, Michigan City.

He was a 1944 graduate of Indiana University School of Medicine and served in the Army from 1945 to 1947.

Dr. Turgi was a member of the American Academy of Facial Plastic and Reconstructive Surgery and the Indiana Ear, Nose and Throat Society. He was a clinical instructor at Northwestern University Medical School and a faculty member of Gary Methodist Hospital's family practice training program.

Memorials: Indiana Medical Foundation

The Indiana Medical Foundation, Inc. was formed by the Indiana State Medical Association "for religious, charitable, scientific, literary or educational purposes." It provides financial assistance to support the educational mission of Indiana Medicine.

Contributions made to the Foundation are deductible by donors in accordance with the Internal Revenue Code. Gifts are deductible for Federal estate and gift tax purposes.

The Foundation is pleased to acknowledge the receipt of gifts in remembrance of the following individuals:

Sam W. Litzenberger, M.D. Eli Goodman, M.D. Wemple Dodds, M.D. James J. Stewart, Esq. Celia Burkhart

Guy A. Owsley, M.D. Wilbert Smith Eugene S. Rifner, M.D. Elsie A. Reid Lester D. Bibler, M.D.

THE INDIANA STATE MEDICAL ASSOCIATION

OFFICERS

President Tawrence L. Allen, Anderson Pres elect Paul Siehenmorgen, Terre Haute Immed Past Pres-George T Tukemeyer, Indpls Executive Director Donald F. Foy, Indpls 1reasurer - George H. Rawls, Indpls Asst Treas Alax Wesemann, Franklin Speaker—Shirley I Khalout, Alarion Vice Speaker - Fred W. Dahling, New Haven

EXECUTIVE COMMETTEE

*Fawrence L. Allen, Anderson Paul Siehenmorgen, Terre Haute George L. Lukemeyer, Indpls George H. Rawls, Indpls Max Wesemann, I ranklin Shirley T. Khalout, Marion Ered W. Dahling, New Haven John D. MacDougall, Beech Grove Davis W. Fllis, Rushville Mark M. Bevers, Seymour

TRUSTEES (Terms end in October)

- I-E. DeVerre Gourieux, Evansville (1986)
- 2-Ralph W. Stewart, Vincennes (1987)
- 3-Richard G. Huber, Bedford (1985)
- 4 Mark M. Bevers, Seymour (1986)
- 5-Benny Ko, Terre Haute (1987)
- 6-Davis W. Ellis, Rushville (1985)
- *7-John D. MacDougall, Beech Grove (1986)
- 7—William H. Beeson, Indianapolis (1987)
- 8-William C. VanNess II, Summitville (1987)
- 9—Alax N. Hoffman, Covington (1985)
- 10-Charles D. Egnatz, Schererville (1986)
- II-Edward I. Langston, Flora (1987)
- 12-Michael O. Mellinger, LaGrange (1985)
- 13-John W. Luce, Michigan City (1986)
- *Chairman

ALTERNATE TRUSTEES (Terms end in October)

- 1-Wallace M. Adye, Evansville (1985)
- 2-Paul J. Wenzler, Bloomington (1986)
- 3-Thomas A. Neathamer, Jeffersonville (1986)
- 4-William F. Cooper, Columbus (1985)
- 5-Fred E. Haggerty, Greencastle (1985)
- 6-Clarence G. Clarkson, Richmond (1986)
- 7—Donna J. Meade, Indianapolis (1985)
- 7—Garry L. Bolinger, Indianapolis (1985)
- 8-Douglas A. Triplett, Muncie (1985)
- 9-R Adrian Lanning, Noblesville (1986)
- 10-Walfred A. Nelson, Gary (1985)
- 11-Jack W. Higgins, Kokomo (1986)
- 12-Thomas A. Felger, Eort Wayne (1986)
- 13-Steven M. Yoder, Goshen (1985)

AMA DELEGATES (Ferms end Dec. 31)

Marvin I: Priddy, Eort Wayne (1985) Peter R. Petrich, Attica (1985) Thomas C. Tyrrell, Hammond (1985) Everett E. Bickers, FLoyds Knobs (1986) Malcolm O. Scamahorn, Pittshoro (1986). Colhert M. Wilhelmus, Evansville (1986)

AMA ALT. DELEGATES (Terms end Dec. 31)

Martin J. O'Neill, Valparaiso (1985) Arvine G. Popplewell, Indianapolis (1985). Vincent 1 Santare, Munster (1985) Alvin 1 Haley, Carmel (1986) John A. Knote, Latayette (1986) Robert M. Seihel, Nashville (1986)

DISTRICT OFFICERS AND MELLINGS

- 1 Pres: Donald R. Elder, Evansville Secy: Gary L. Beck, Lvansville Annual Meeting:
- 2-Pres: William D. Cutshall, Bloomington Secv: Dwight 1 Staulfer, Bloomington Annual Meeting: 1985, Bloomington
- 3-Pres: Wallace Johnson, Bedford Secy: Richard G. Huber, Bedford Annual Meeting:
- 4-Pres: William E. Cooper, Columbus Secy: Kenneth D. Schneider, Columbus Annual Meeting:
- 5-Pres: Michael S. McCrea, 1erre Haute Secy: Peggy Sankey Swaim, Rockville Annual Meeting: Sept. 5, 1984, Greencastle
- 6- Pres: Dean Felker, Greenfield Secy: Douglas Morrell, Rushville Annual Meeting:
- 7—Pres Donald J Kerner, Indianapolis Secv. Marshall H. Trusler, Indianapolis
- Annual Meeting: 1985, Indianapolis 8—Pres: Charles W. Bartholome, Muncie Secy: Stephen R. Miller, Muncie Annual Meeting: June 5, 1985, Muncie
- 9-Pres: James Balvich, Monticello Secy: David A. Shapiro, Monticello Annual Meeting: June 12, 1985, Monticello
- 10-Pres: Rohert J. Bills, Merrillville Secy: Barron M. Palmer, Hammond Annual Meeting: 1985
- 11-Pres: Michael A. Shirley, Kokomo Secy: Fred Poehler, LaEontaine
- Annual Meeting: Sept. 18, 1985, Kokomo 12-Pres: Antonio B. Donesa, Fort Wayne
- Secy: Alark S. Souder, Auburn Annual Meeting: Sept. 19, 1985, Fort Wayne
- 13-Pres: Ben Ticsay, Michigan City Secv: Michael Thomas, Elkhart Annual Meeting: Sept. 11, 1985, Michigan City

COMMISSION CHAIRMEN

Constitution & Bylaws Lloyd L. Hill, Peru Legislation

Edward L. Langston, Elora Physician Impairment

Larry M. Davis, Indianapolis

Public Relations John V. Oshorne, Muncie

Medical Services John D. MacDougall, Indianapolis

Convention Arrangements

Garry L. Bolinger, Indianapolis Medical Education

Franklin A. Bryan, Fort Wayne Sports Medicine

Gary Prah, Lafavette

COMMITTEE CHAIRMEN

Negotiations

Hebert C. Khalouf, Marion Medical Education Fund John W. Beeler, Indianapolis Grievance

G. Beach Gattman, I-lkhart Future Planning

W.C. Van Ness II, Alexandria Medico-Legal

John W. Beeler, Indianapolis Indiana Medical Eoundation Frank B. Ramsey, Indianapolis

Reduce Drunk Driving Michael DuBois, Indianapolis Geriatrics

Bill Martz, Brownsburg

SECTION OFFICERS

ALLI:RGY Climn:

Secy:
ANI STITESIOLOGY
Chinn: Steven R. Young, Carmel
Secy: Donald L. Weninger, Michigan City
CUTANI OUS MI-DICINI
CUTANI OUS MI-DICINI
CUTANI OUS MI-DICINI

CULANI OUS MI-DICINI
Chmn: Alan Gilbert, Fort Wayne
Seey: Donald Smith, South Bend
DIRECTORS OF MEDICAE EDUCATION
Chmn: Robert B. Chevalier, Beech Grove
Seey: Thomas P. Dunlee, South Bend
EMERGENCY MEDICINI
Chmn: John C. Johnson, Crown Point
Seey: Clark McClure, Valparaiso
FAMILY PRACTICE
Chmn: Barnayd L. Engley, Johnson Bernard L. Engley, Johnson

FAMILY PRACTICE
Chmn: Bernard J. Emkes, Indianapolis
Secy: William C. Spence, Knightstown
INTERNAL MEDICINE
Chmn: Ramon S. Dunkin, Indianapolis
Secy: Rohert L. Rudesill, Indianapolis
MI DICAL DIRECTORS & SLAFF PHYSICIANS
OF NURSING FACH ITIES
Chmn: Hugh K. Thatcher, Indianapolis
Secy: Ivan L. Lindgren, Aurora
NEUROLOGY
Chmn: Charles A. Bonsett, Indianapolis
(Dec. T.)

Chmn: Charles A. Bonsett, Indianapolis (Pro-Tem

Secy:
NEUROLOGICAI SURGERY
Chmi: Daniel 1. Cooper, Indianapolis
Secy: Marvin R. Bernard, Merrillville
NUCLEAR MEDICINE
Chimi: Glenn B. Mather, Bloomington
Secy: Miguel B. Dizon, Indianapolis
OBSTETIMES & CANNECOLOGY

OBSTETRICS & GYNECOLOGY
Chmn: J. Rohert Stanley, Muncie
Secy: William E. Graham, Eort Wayne

Seey: William E. Granam, Eort Wayne
OPHTHAEMOLOGY
Chim: Forrest Ellis, Indianapolis
Seey: Gerald Keener, Indianapolis
ORTHOPAEDIC SURGERY
Chim: Ben Woodward, Evansville
Seey: Wade Rademacher, Beech Grove
OTOEARYNGOLOGY, HEAD & NECK

SURGERY
Chmn: J. William Wright III, Indianapolis Chmn: J. William Wright III, Indianapolis Secy: Richard I. Miyamoto, Indianapolis PATHOLOGY & EORENSIC MEDICINE Security New Castle Chmn: Calvin N. Steussy, New Castle Secy: Arthur C. Jay, Lebanon PEDIATRICS

Chmn: Rohert M. Sweeney, South Bend Secy: Kenneth C. Castor, Fort Wayne
PREVENTIVE MEDICINE & PUBLIC HEALTH

Chmn: Joseph D. Richardson, Rochester Seey: Francis B. Warrick, Richmond PSYCHIATRY

Chmn: Dwight Schuster, Indianapolis Secy; Cherryl G. Friedman, Noblesville RADIOLOGY

Chmn: Patrick Dolan, Indianapolis Secy: Richard L. Pitman, Columbus SURGERY

Chmn: John D. Pulcini, Evansville Secy: 1ed W. Grisell, Indianapolis **UROLOGY** Chmn: Secy:

ISMA KEY STAFF PERSONNEL

Donald I-ov-Executive Director Kenneth Bush-Asst Exec Director Michael Huntley—Special Assistant Richard King-Attorney Ronald Dver-Attorney Bob Sullivan-P.R., Insurance John Wilson-Accountant Howard Grindstaff-Field Services Sara Klein-Field Services

Mary Alice Cary-Executive Asst., House of Delegates

Rosanna Iler-Memhership, Auxiliary Beckett Shady-King-CME, 1ravel,

COMMERCIAL ANNOUNCEMENTS.

WANTED: PRIMARY CARE PHYSICIAN licensed in Indiana to practice in university 38-bed, JCAH-accredited hospital for a 12-month fiscal year appointment. Must be able to communicate with and have empathy toward the college-age population. Salary negotiable; excellent fringe benefits. Send resume to T. A. Schott, Administrator, Purdue Student Hospital, West Lafayette, Ind. 47907. An equal opportunity/affirmative action employer.

FOR SALE: Central Indiana family practice in a clinical setting. Many charts, gross over \$250,000 for past 3 years. Quiet community near Indianapolis. Contact H. J. Vaughn, Business Manager, 132 Ulen Blvd., Lebanon, Ind. 46052—(317) 873-5095.

ANESTHESIOLOGIST, BE, available for locum tenans work. Licensed in Indiana and Michigan. Contact W. T. Kirsten, M.D., P.O. Box 542, Lapeer, Michigan 48446—(313) 667-9309.

GENERAL/FAMILY PRACTITIONERS—If you are looking for an opportunity to be in the forefront of medical care, practice preventive medicine, work with other innovative professionals, and earn a comfortable living in pleasant surroundings, send your curriculum vitae to Physician Placement Dept-25. An equal opportunity employer. CIGNA Healthplans of California, 700 N. Brand Blvd., Ste 500, Glendale, CA 91203.

RENT LUXURIOUS FLORIDA condominium Hutchinson Island. Two bedroom, two bath. Golf, tennis, pool, private beach. Call Tom Stayton, (317) 636-4535.

MEDICAL DIRECTOR—Opportunity for physician with experience in medical group practice administration to join established HMO in Madison, Wisconsin. Group Health serves 29,000 patients with its staff of 20 physicians and total staff of 180. Excellent salary and benefit program. This represents a rewarding opportunity to develop or progress your career in medical administration. Contact: John Mueller, Group Health Cooperative, 1 South Park St., Madison, Wisconsin 53715—(608) 251-4156.

FAMILY PRACTICE PHYSICIAN wanted for diagnosis, treatment and patient care in all areas of family medicine. Requires M.D. degree in Medicine and one year training as a Medical Intern. \$60,320 per year; 40 hours per week. Send resume with Social Security number to the Indiana State Employment Service, 10 N. Senate Ave., Indianapolis, Ind. 46204. Attention W.F. Shepherd, I.D. #3012646.

MEDICAL DIRECTOR—Immediate opening for full-time Medical Director of a developing community mental health center west of Indianapolis; special-ty in psychiatry, Board-eligible, preferably Board-certified, post-residency experience required. Contact John L. Clodfelter, Ph.D., Director, Outpatient Services, Cummins Mental Health Center, P.O. Box 158, Danville, Ind. 46122—(317) 745-5419.

VACATION on beautiful Sanibel Island, Florida – Luxury, Gulf-front 2-bedroom, 2-bath condo w/pool, tennis courts and BBQ facilities. Seasonal rates. Contact M. Evans – (312) 361-4742.

EMERGENCY MEDICINE Position Available: Opportunity for experienced Emergency Physician to join professional group practicing in Hobart and Gary, Indiana. Contact Dr. Cornelius Arnold at (312) 747-7115.

B.E., B.C. FAMILY PRACTITIONER to join a busy family practice in Indiana. Close to large city medical center 20 miles away. Send resume to Dr. V. N. Goel, 296 Hidden Valley Drive, Lawrenceburg, Ind. 47025.

FAMILY PRACTICE Rapidly expanding staff model HMO in Madison, Wisconsin, has opportunities for additional family practice physicians. Competitive salary with excellent benefits and at tractive practice setting. GHC is an established, rapidly growing HMO serving 29,000 patients. Current staff totals 180 employees, including 20 physicians. Contact: John Mueller, Group Health Cooperative, 1 South Park St., Madison, Wisconsin 53715—(608) 251-4156.

EMERGENCY MEDICINE Position Available: Opportunity for experienced Emergency Physician to join professional group practicing in northwestern Indiana. Contact Dr. Daniel Philipsborn at (312) 248-5557.

FOR RENT: Office space, including x-ray unit, exam tables, some physical therapy equipment. Has receptionist and waiting room. Office located east side of Indianapolis. Call (317) 547-1340; 9-6, Mon-Fri.

MEDICAL DIRECTOR at Muscatatuck State Hospital and Training Center, an 840-bed facility for mentally retarded residents. Located in Jennings County in an attractive rural area about 70 miles from Indianapolis, Louisville and Cincinnati. Must be board eligible in Internal Medicine, Psychiatry or Neurology. Salary negotiable depending on experience and training. Contact William J. Culley, Ph.D., Asst. Superintendent, Muscatatuck State Hospital, Box 77, Butlerville, IN 47223—(812) 346-4401, Ext. 222.

INDIANA CITY with serving area of 125,000 needs physician to staff free-standing urgent care center. Compensation \$75,000 plus bonuses and partnership arrangement. Structured hours and coverage. Contact Lynn Stefanutti, Spring Creek Road, Rt. #2, Box 61, Barrington Hills, IL 60010—(312) 358-1437 or (312) 382-1298.

PHYSICIANS—Flexible general medicine position; competitive compensation. Contact Dennis Flake at (317) 923-3737 or send resume to House Call Physicians, 3561 N. Pennsylvania St., Indianapolis 46205.

Commercial announcements are published as a service to members of the Indiana State Medical Association. Only ads considered to be of advantage to members will be accepted. Advertisements of a truly commercial nature (e.g., firms selling brand products, services, etc.) will be considered for display advertising.

All orders must be in writing and will automatically be set in regular classified type. Box numbers are not available.

Charges:

Indiana physicians	25¢/word (\$5 min)
Out-of-state physicians	.35¢/word (\$7 min)
Hospitals/health care facilities	.50¢ word (\$10 min)
Realtors/commercial recruitment	
and all others	75¢/word (\$15 min)

Deadline: First working day of month preceding month of publication.

Payment Procedure: Payment in advance is not required. Invoices and tearsheets are mailed to advertisers upon publication. INDIANA MEDICINE is issued on the 10th of each month.

Address: Indiana Medicine, 3935 N. Meridian St., Indianapolis, Ind. 46208.

We Sell

PEACE OF MIND

Let us help you with your security and telecommunications needs. We can custom design a package for your home and/or office, for alarm, telephone, paging, and background music systems. For a free survey of your needs and proposal, call today:

(317) 631-6666

EAGLE PROTECTIVE AND COMMUNICATIONS SERVICES, INC.

425 WEST SOUTH STREET INDIANAPOLIS, INDIANA 46225

VISA and MasterCard accepted



There are two big advantages to Navy Medicine:

- 1. Ideal professional practice, superior facilities, professional support.
- 2. Desirable personal lifestyle. Officer fringe benefits. Travel. Salary and other benefits competitive with civilian practice.

ADDITIONALLY . . . HAVE YOU EVER WANTED TO FLY?!

Then the Navy's Flight Surgeon program may be just the change you are looking for. Send your resume to, or call for more information: Navy Medical Programs 575 N. Pennsylvania St., Indianapolis, IN 46204 (317) 269-6298 or toll free 1-800-382-9404 extension 6298

ADVERTISERS INDEX

January 1985	Vol. 78	No. 1
All Makes Auto	Leasing, Inc	68
American Physici	ans Life	62
Brown Pharmace	utical Co	61
Campbell Labora	tories	2
Central Pharmace	euticals, Inc	48
Commercial Anno	ouncements	79
Deaconess Hospit	al	
Eagle Protective		80
Eastman Kodak (Co	53-55
Eli Lilly and Co.		69
Hook Drugs		29
Indiana Medical	Bureau	35
Indiana Medical	Foundation	76
Lincoln National	Life	38
Marion Laborato	ries	9, 10
Medical Protectiv	e Co	60
Mediclinies, Inc.		2
Peoples Drug		5
Physicians' Direct	tory	70-75
Physicians Insura	nce Co. of Indiar	na Cover
Roche Laboratori	es	Covers
Shearson-Lehman	/American Expre	ss
Stuart Pharmaceu	ıtical	41, 42
St. Paul Fire & N	Aarine Insurance.	51
Upjohn Company	[,]	43
U.S. Air Force		65
U.S. Navy		80
Winthrop-Breon .		39, 40

In accepting advertising for publication, INDIANA MEDICINE has exercised reasonable precaution to insure that only reputable, factual advertisements are included. However, we do not have facilities to make comprehensive or complete investigation, and the claims made by advertisers in behalf of goods, services and medicinal preparations, apparatus or physical appliances are to be regarded as those of the advertisers only. Neither sanction nor endorsement of such is warranted, stated or implied by the association.

COMPLETE LABORATORY DOCUMENTATION 1-5... EXTENSIVE CLINICAL PROOF



FOR THE PREDICTABILITY CONFIRMED BY EXPERIENCE

DALMANE® flurazepam HCI/Roche

THE COMPLETE HYPNOTIC PROVIDES ALL THESE BENEFITS:

- Rapid sleep onset¹⁻⁶
- More total sleep time¹⁻⁶
- Undiminished efficacy for at least 28 consecutive nights²⁻⁴
- Patients usually awake rested and refreshed^{7,9}
- Avoids causing early awakenings or rebound insomnia after discontinuation of therapy^{2,5,10-12}

Caution patients about driving, operating hazardous machinery or drinking alcohol during therapy. Limit dose to 15 mg in elderly or debilitated patients Contraindicated during pregnancy

DALMANE® flurazepam HCI/Roche

References: 1. Kales J et al: Clin Pharmacol Ther 12 691-697, Jul-Aug 1971. 2. Kales A et al: Clin Pharmacol Ther 18:356-363, Sep 1975. 3. Kales A et al Clin Pharmacol Ther 19:576-583, May 1976. 4. Kales A et al: Clin Pharmacol Ther 32:781-788, Dec 1982. 5. Frost JD Jr, DeLucchi MR. J Am Genatr Soc 27:541-546, Dec 1979. 6. Kales A, Kales JD. J Clin Pharmacol 3:140-150, Apr 1983. 7. Greenblatt DJ, Allen MD, Shader RI. Clin Pharmacol Ther 21:355-361, Mar 1977. 8. Zimmerman AM. Curr Ther Res 13:18-22, Jan 1971. 9. Amrein R et al. Drugs Exp Clin Res 9(1):85-99, 1983. 10. Monti JM. Methods Find Exp Clin Pharmacol 3:303-326, May 1981. 11. Greenblatt DJ et al: Sleep 5(Suppl. 1):S18-S27, 1982. 12. Kales A et al: Pharmacology 26:121-137, 1983.

Before prescribing, please consult complete product information, a summary of which follows:

Indications: Effective in all types of insomnia characterized by difficulty in falling asleep, trequent nocturnal awakenings and/or early morning awakening; in patients with recurring insomnia or poor sleeping habits; in acute or chronic medical situations requiring restful sleep. Objective sleep laboratory data have shown effectiveness for at least 28 consecutive nights of administration. Since insomnia is offen transient and intermittent, prolonged administration is generally not necessary or recommended. Repeated therapy should only be undertaken with appropriate patient evaluation.

Contraindications: Known hypersensitivity to flurazepam HCI, pregnancy Benzodiazepines may cause fetal damage when administered during pregnancy Several studies suggest an increased risk of congenital mailormations associated with benzodiazepine use during the first trimester. Warn patients of the potential risks to the fetus should the possibility of becoming pregnant exist while receiving flurazepam. Instruct patient to discontinue drug prior to becoming pregnant. Consider the possibility of pregnancy prior to instituting therapy.

Warnings: Caution patients about possible combined effects with alcohol and other CNS depressants. An additive effect may occur if alcohol is consumed the day following use tor nightime sedation. This potential may exist tor several days tollowing discontinuation. Caution against hazardous occupations requiring complete mental alertness (e.g., operating machinery, driving). Potential impairment of performance of such activities may occur the day following ingestion. Not recommended for use in persons under 15 years of age. Though physical and psychological dependence have not been reported on recommended doses, abrupt discontinuation should be avoided with gradual tapering of dosage for those patients on medication for a prolonged period of time. Use caution in administering to addiction-prone individuals or those who might increase dosage.

Precautions: In elderly and debilitated patients, it is recommended that the dosage be limited to 15 mg to reduce risk of oversedation, dizziness, confusion and/or ataxia. Consider potential additive effects with other hypnotics or CNS depressants. Employ usual precautions in severely depressed patients, or in those with latent depression or suicidal tendencies, or in those with impaired renal or hepatic function

Adverse Reactions: Dizziness, drowsiness, light-headedness, staggering, ataxia and falling have occurred, particularly in elderly or debilitated patients. Severe sedation, lethargy, disorientation and coma, probably indicative of drug intolerance or overdosage, have been reported. Also reported headache, heart-burn, upset stomach, nausea, vomiting, diarrhea, constipation, GI pain, nervousness, talkativeness, apprehension, irritability, weakness, palpitations, chest pains, body and joint pains and GU complaints. There have also been rare occurrences of leukopenia, granulocytopenia, sweating, flushes, difficulty in tocusing, blurred vision, burning eyes, faintness, hypotension, shortness of breath, pruritus, skin rash, fry mouth, bitter taste, excessive salivation, anorexia, euphoria, depression, slurred speech, confusion, restlessness, hallucinations, and elevated SGOT, SGPT, total and direct bilirubins, and alkaline phosphatase; and paradoxical reactions, e.g., excitement, stimulation and hyperactivity

Dosage: Individualize tor maximum beneficial effect Adults: 30 mg usual dosage; 15 mg may suffice in some patients Elderly or debilitated patients: 15 mg recommended initially until response is determined.

Supplied: Capsules containing 15 mg or 30 mg flurazepam HCl.



DOCUMENTED IN THE SLEEP LABORATORY¹⁻⁵. PROVEN IN THE PATIENT'S HOME



FOR A COMPLETE NIGHT'S SLEEP

DALMANE®

flurozepam HCl/Roche

STANDS APART

15-MG/30-MG CAPSULES

See preceding page for references and summary of product information.

Copyright © 1984 by Roche Products Inc. All rights reserved.

FEBRUARY 1985

VOL.78

NO.2

INDIANA MEDICINE

The Journal of the Indiana State Medical Association

27 Visikargen to your windows



"...Your financial security specialists are on call"

American Physicians Life believes a physician's financial security deserves specialized attention. That's why our products and services are designed with the doctor in mind. Our comprehensive portfolio of services, including life insurance, professional disability income coverage, qualified plans and tax-deferred annuities, is customized to meet your personal financial planning needs as well as those of your professional corporation.

Let American Physicians Life secure your financial planning program—that's our specialty!

For more information contact:

Williams/Townsend Associates 8900 Keystone Crossing, Suite 500 Indianapolis, Indiana 46240 (317) 844-3119

Endorsed by the Indiana State Medical Association



Bates Drive, P.O. Box 281 Pickerington, Ohio 43147 Telephone (614) 864-3900 Toll-free in Ohio, 1-800-282-7515 Toll-free outside Ohio, 1-800-742-1275

INDIANA MEDICINE

Vol. 78, No. 2 FEBRUARY 1985

WINNER

Sandoz Medical Journalism Award—1976, 1979

SCIENTIFIC ARTICLES

- 97 CME: Chronic Diverticular Disease of the Colon
- 104 PEDIATRIC CRITICAL CARE: Adult Respiratory Distress Syndrome in a PD Patient
- 108 The Coronary Artery Surgery Study: A Critical Review
- 111 Maternalism: A Sound Concept in Medicine
- 117 CRITICAL CARE MEDICINE: Continuous Monitoring of Blood Gases in the ICU, OR
- 120 Prophylactic Antibiotics in Surgery
- 127 CPC: 44-Year-Old Man with Rectal Bleeding

FEATURES

- 82 President's Message: Major Changes in Health Care for Older Hoosiers
- 102 Editorial: Pediatric Critical Care Medicine
- 103 Indiana's School Asbestos Screening Program
- 140 Commentary: You'd Better Bring Your Own Meat Sauce
- 144 Marketing and Your Four PR Pressure Points

FET 20 (M)

DEPARTMENTS. MISCELLANEOUS

- 83 Medical Museum Notes
- 84 What's New?
- 86 Future File
- 94 Public Health Notes
- 107 Drug Names
- 139 CME Quiz
- 148 Auxiliary Report
- 150 Editorials, Letters
- 152 News Notes
- 154 New ISMA Members
- 162 Obituaries
- 163 ISMA Officers, Trustees
- 166 An Ounce of Prevention

USPS 284-440 ISSN 0746-8288

OFFICE OF PUBLICATION: 3935 N. Meridian St., Indianapolis, Ind. 46208 Tel: (317) 925-7545

INDIANA MEDICINE (ISSN 0746-8288) is published monthly by the Indiana State Medical Association. Second-class postage paid at Indianapolis, Ind.

POSTMASTER: Send address changes to INDIANA MEDICINE, 3935 N. Meridian St., Indianapolis, Ind. 46208.

Yearly subscription rates: \$20 domestic, \$22 Canada, \$23 foreign. Library rates: \$18 domestic, \$20 Canada, \$21 foreign. Senior ISMA members and full-time medical students—\$10. Single copies not available. Subscriptions renewable only in January and July.

Views expressed do not necessarily reflect the opinions of the editors. No copyright is claimed, unless specifically indicated. Copyright rests solely with authors, who are responsible for statements made in their articles. Scientific and editorial contributions are accepted for exclusive publication, subject to editorial requirements. Publication deadline: 1st day of month preceding month of issue. Instructions for authors available upon request.

All issues since 1967 are available on microfilm from University Microfilms International, 300 N. Zeeb Rd., Ann Arbor, Mich. 48106. Indexed in Index Medicus and Hospital Literature Index.

Advertising rates and data available upon request.

EDITOR

Frank B. Ramsey, M.D.

MANAGING EDITOR

Martin T. Badger

BUSINESS MANAGER

Donald F. Foy

CIRCULATION MANAGER

Karyl Hancock

EDITORIAL BOARD

Elton Heaton, M.D.

Nancy C. A. Roeske, M.D.

(Terms expire Dec. 31, 1985)

Alvin J. Haley, M.D.

Alan T. Marty, M.D.

(Terms expire Dec. 31, 1986)

Thomas J. Conway, M.D.

I.E. Michael, M.D.

(Terms expire Dec. 31, 1987)

Vacant

Vacan

(Terms expire Dec. 31, 1985)

INDIANA MEDICINE

ABOUT THE COVER

With this issue, INDIANA MEDICINE introduces a new series on Pediatric Critical Care Medicine. The first article, beginning on page 104, is based on a case report involving a 16-month-old boy found to be cyanotic and in severe respiratory distress from having aspirated kerosene; the discussion emphasizes ER and pediatric intensive care unit management priorities.—DRAWING BY BRENDA KESTER, MEDICAL MEDIA PRODUCTIONS, METHODIST HOSPITAL OF INDIANA

CONSULTING EDITORS

Steven C. Beering, M.D., Charles A. Bonsett, M.D., A. W. Cavins, M.D., Rodney A. Mannion, M.D., Lall G. Montgomery, M.D., Paul S. Rhoads, M.D., W. D. Snively, M.D., I. W. Wilkens, M.D.

Major Changes in Health Care for Older Hoosiers

LAWRENCE E. ALLEN, M.D.
President
Indiana State Medical Assn.

HE MOST SIGNIFICANT major change in the profile of society utilizing health care is the increased number of people 65 years and older, which is growing at about twice the rate of the general population at large, and is the most important change for us to appreciate, because older people undeniably need more medical care.

Growth in numbers of our Senior Citizen population is not the only change to appreciate in this age category. We must also be aware of the patterns of migration as we observe that more of our citizens are leaving the Eastern and Northeastern portions of our country and moving South and West. How this affects the relative percentage of the residual population in Indiana in respect to the Senior Citizen component, is a vital factor in our ability to adapt and engage in short and long range planning.

The Government has, in the past 18 months, brought yet further change to the social profile of health care utilization. Beginning with the Amendments to the Medicare Law enacted in 1983, the Federal Government declared that it had set a limit on the amount of reimbursement that would be allowed to hospitals caring for older Hoosiers. This was initially interpreted by many Senior Citizens as a means of decreas-

ing their hospital costs, but as older Hoosiers have come to realize, Medicare Law of 1983, known as the DRG Method of Reimbursement, simply means that the Medicare patient is eligible only for health care that conforms to certain limits of cost, irrespective of the individual needs of the patient. All Medicare recipients will be limited to an average range for diagnostic and therapeutic costs and an average range of length of stay for hospital care.

The more recent change in the Medicare Law came in the provisions of the Deficit Reduction Act of 1984, which is specifically designed to limit reimbursement of medical services provided by physicians for Medicare patients. Once again, there was misinformation given in the form of a false promise that the Government was doing this in an effort to save money for the elderly and the disabled. What the new law actually means is that the Federal Government will not pay the full fee for physicians' services rendered to Medicare patients.

The Congress, in enacting this legislation, has in fact, unilaterally selected out our older citizens as that segment of society which will initially bear the experience of health care rationing for the American people. The reimbursement freeze for Medicare patients receiving physicians' services is accomplished under a system that creates two classes of patients - those served by Participating Physicians and those served by Non-participating Physicians. Those physicians who agree to participate with the assignment methodology have thus agreed to waive the right of patients to choose their own physician, and the right of

physicians to deal directly with their own patients on an individual basis.

Physicians feel that this recent Medicare Law is an unconstitutional act on the part of Congress, in that it arbitrarily discriminates against one class of individuals, namely the patients and physicians who have agreed not to use assignment as a form of accepting reimbursement for Medicare services. We also believe that it goes beyond the powers that the Congress has given itself in the Commerce Act. We feel it violates the basic rights of Medicare beneficiaries and their physicians to equal protection under the law and that it seriously impairs the fundamental right to contract freely for medical services.

Physicians are further concerned that the change in the Medicare Law will actually restrict the freedom of choice that Medicare beneficiaries have traditionally exercised in choosing their own physicians. The negative result of this, we fear, will be a decrease in the accessibility that Medicare patients will experience in seeking medical services under the constraints of the new Medicare Law. The provisions having to do with Medicare patients under the Deficit Reduction Act will serve to turn patients away from more traditional patient-doctor relationships, and in some instances, may deter patients from visiting their regular physician.

The physicians in Indiana wish to reassure our older patients that we intend to continue our traditional commitment of providing care based on the needs of the patient and will not deviate from the practice of rendering this service within the financial resources of the patient.

MUSEUM NOTES

CHARLES A. BONSETT, M.D., Indianapolis

RS. JUNE H. MORRISH of LaPorte, Ind., has prompted this month's page of Notes. She is related to a number of physicians—past and present. Her interesting letter mentions that "Dr. David Sweeney Hillis was a close relative of mine. He lived in Chicago but his father was from Greensburg, Ind. He and Dr. Joseph DeLee were associated in an office. They invented the DeLee-Hillis [obstetrical] stethoscope."

Mrs. Morrish's principal concern, however, was not with physicians per se, but rather with another of her kin in the Hillis family, Charlotte Elmira (Hillis) Guffin, a 19th century artist who signed her paintings as Lotta Guffin. One of her best known works in Indiana was a portrait of Dr. Thomas B. Harvey. Mrs. Morrish was interested in knowing its present location.

Lotta Guffin was a student of Jacob Cox, an unusually talented, self-taught pioneer Indiana artist. Cox had a studio on West Washington Street in downtown Indianapolis and it was there, sometime following the Civil War, that Mrs. Guffin became his pupil. She, too, was a talented artist and until 1885 she also maintained a studio in Indianapolis. She then moved to New York City and later to Chicago, where she died in 1896 at the age of 52.

In her own research, Mrs. Morrish had found a reference to Lotta Guffin and examples of her work in Willard D. Peat's book, *Pioneer Painters of Indiana*. This book mentions her painting of Dr. Thomas B. Harvey and indicates that the painting is located at the library of the Indiana University School of Medicine, but this was many years ago. Mrs. Morrish inquired about the painting at the medical school library and was referred to the Medical Museum; hence, the reason for her letter.

Here the story gains a particular interest.

The reader may recall that in August 1976 this page of Notes reported the recovery of an antique



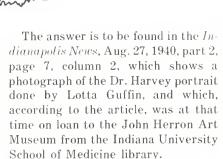
Thomas B. Harvey, M.D.

He was the subject of a painting by 19th century artist Lotta Guffin, but its location is a mystery . . .

frame whose oval opening was covered with a dirty, black, torn, featureless piece of linen which, upon cleaning and repair, proved to be a very handsome portrait of a distinguished-appearing gentleman, done by an artist of superb ability. But there was no identity of the subject, no date, and no recognizable signature of the artist. On the reverse side of the canvas was stamped: "George W. White, Artist, Hamilton, Ohio." Was he the artist of this superb portrait or was he a source of artist's supplies for another gifted person?

The June 1983 page of Notes reported the recent receipt of an old manila envelope that contained, among other things, a yellowed, typewritten sheet which provided the essential information for identifying the subject of the painting, who proved to be—Dr. Thomas B. Harvey. No information was given regarding the artist or the date of the portrait.

The \$64 question at this point was whether the portrait of Dr. Harvey in the Museum could be one and the same as that done by Lotta Guffin.



The portrait by Lotta Guffin is not the same as the one now in the Museum. The subjects are faced in different directions, the painting technics are not alike, and the Guffin painting is rectangular whereas the other is oval.

At this time there are more questions regarding Dr. Harvey and his portraits than before Mrs. Morrish made her inquiry. Who, for example, was the artist of the Dr. Harvey portrait in the Medical Museum? And, where is the Guffin portrait? It is not at the I.U.S.M. library. Could it possibly be hanging on another wall somewhere at the I.U. Medical Center? (The medical school library has been moved twice since the article in the *News* was written.)

Was the painting ever returned from the John Herron Art Museum? (Most of the paintings from this museum have long since been moved to the Indianapolis Museum of Art, and the John Herron school is now a part of IUPUI. Neither place knows anything of the painting, nor do they have any examples of Lotta Guffin's work.)

The *News* article mentions that she was born in Greensburg, Ind., in 1844, that she taught music at Northwestern Christian University (now Butler University) before her marriage to Henry Clay Guffin, an Indianapolis attorney, and that she had two small daughters at the time she studied with Jacob Cox.

Dr. Harvey, incidentally, was one of the founders of the Indiana Medical College in 1869, oldest of the proprietary schools which united to form the I.U. School of Medicine. He was elected president of the ISMS (now ISMA) in 1880.

MHAT'S DEWS-

A rapid, simple quantitative enzyme immunoassay (EIA) for the leukemia-associated enzyme, terminal deoxynucleotidyl transferase (TdT), has been developed by Abbott Laboratories. The new assay is 10 times more sensitive than currently used DNA polymerization assays for TdT.

Pall Biomedical introduces the first cardioplegic filter to remove particulates, gaseous emboli and bacteria down to 0.2 microns. It is used in recirculating and non-recirculating cardioplegia delivery circuits employing cell free solutions. The filter features a unique 0.2 micron nylon filter medium, $N_{\rm 66}^{\rm TM}$ nylon.

Alpha Therapeutic Corporation announces the availability of heat-treated Factor IX product, a coagulation protein used in the treatment of Hemophilia B. The product, Profilnine® Heat-Treated, is manufactured by a process designed to reduce the risk of transmission of hepatitis and other virsuses.

Kingswood Laboratories announces availability of Moi-Stir 10, a solution to be sprayed into the throat for relief of dryness of the mouth and throat and for the relief of hoarseness. It is formulated to supplement natural secretions. It also serves to soften and thin thick, heavy mucus. It is especially recommended for singers, entertainers and public speakers.

"Don't get excited. They're flipping a coin

to see who pays for their lunch."

and manufacturers of pharmaceuticals, clinical laboratory supplies, instruments and surgical appliances. Each item is published as news and does not necessarily constitute an endorsement of a product or recommendation for its use by Indiana Medicine or by the Indiana State Medical Association.

News of what is new in the medical

supply industry is composed of abstracts

from news releases by book publishers

The Silcraft Corporation announces a new type of bather for the physically handicapped and the elderly. Bather 2000 has a side opening door which slides up and completely out of the way while the patient enters the tub. The side door when lowered is locked into place and forms a perfect water-tight seal. It is suitable for shower baths or tub baths. All controls are mounted on a movable console. It is designed for home use especially — most handicapped persons are able to use the Bather without assistance.

Fisons Corporation is announcing the availability of Opticrom®, a new medication to prevent ocular allergies. Opticrom is a 4% Ophthalmic Solution (cromylin sodium, USP). It is a prescription drug recommended for adults and for children four years old and older. If used after symptoms develop, relief begins in a few hours with improving progress over several days. Opticrom is most effective when used prior to exposure to offending allergens.

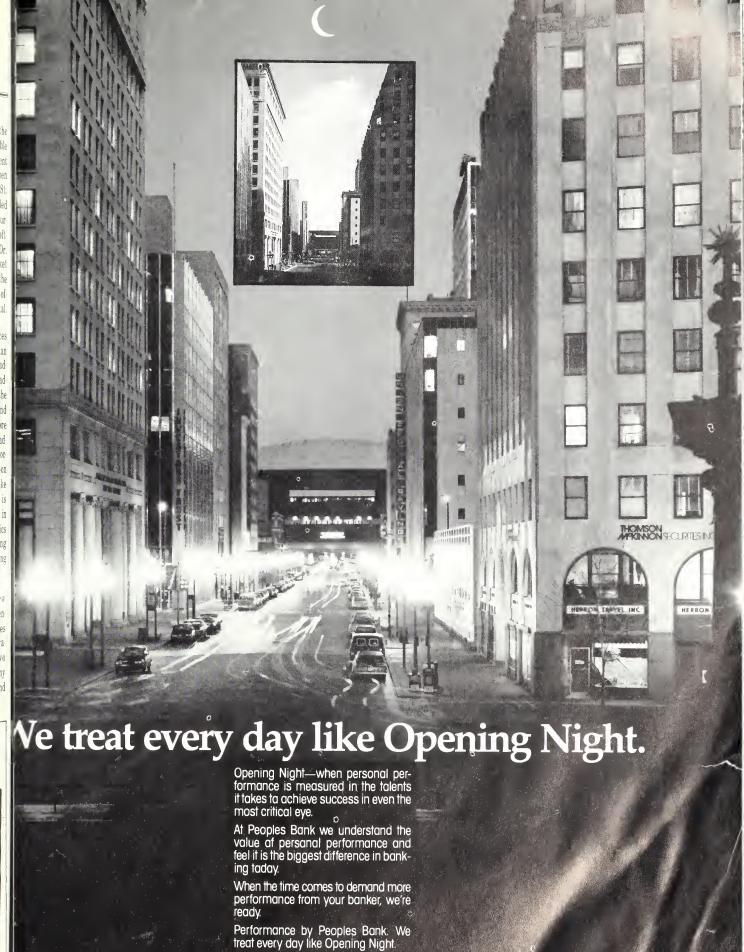
Solid State Heating Corporation introduces the ENERJOYtm Solid State Radiant Heating system, suitable for offices, homes, nursing homes and hospitals. Heating panels may be installed with room controls or area controls. The energy efficiency allows an unoccupied room or area to be set for 55° to 60° and then reach a comfortable level within four minutes after the panels are activated. The system produces a comfortable environment at 6° to 8° lower than usual. The panels are useful in new construction and in remodeling, and may be used as auxiliary to other heating methods.

The Lesnik Company announces the adaptation of its Epson IIX-20 portable computer to an accurate and efficient use in hospital records. Dr. Stephen Ash, co-director of dialysis at St. Elizabeth Hospital in Lafayette, aided by a computer science major at Purdue University, has formulated a software program for the computer. Dr. Ash has formed a company to market the program. The computer and the software package are useful in an office practice as well as in the hospital.

DuPont Pharmaceuticals announces FDA approval for marketing Trexan (naltrexone HC1), the first major advance in the treatment of narcotic addiction in 20 years. Trexan enables the addict to receive treatment and counseling while maintaining a more normal lifestyle. It also prevents readdiction if impulsive use of narcotics occurs while the patient is maintained on the drug. And further, Trexan, unlike methadone, is nonaddicting. It is believed that it blocks the centers in the brain that react to narcotics derived from opium, thus preventing the narcotic high produced by injecting heroin.

Hewlett-Packard announces a new HP 78834A neonatal monitor for intensive care. Full configuration includes capabilities to monitor ECG, respiration, two temperatures and two pressures. It may be obtained in any of several basic configurations and upgraded later.





peoples

Member FDIC. Founded in 1891 by F. T. McWhirter.

FUTURE FILE

Emergency Medicine

The 14th annual "Indianapolis 500" Postgraduate Course in Emergency Medicine will be conducted May 8-10 by the Indiana Chapter, American College of Emergency Physicians. It will be held at the Radisson Plaza Hotel, Keystone-at-the-Crossing, Indianapolis.

For details, contact Nick Kestner, 914 S. Range Line Road, Carmel, Ind. 46032 – (317) 846-2977.

Behavioral Neurology

A symposium on "Behavioral Neurology: Dementia," sponsored by Vanderbilt University School of Medicine, will be conducted June 7-8 in Light Hall, adjacent to Vanderbilt Hospital on the Vanderbilt campus.

For a brochure and more information, contact Mrs. Joan Sullivan, Dept. of Neurology, Vanderbilt University School of Medicine, 2100 Pierce Ave., Nashville, Tenn. 37212.

Family Practice Refresher

A Family Practice Refresher Course will be conducted March 25 to 29, at the Palm Springs (Calif.) Spa Hotel by the University of California at San Diego.

Accreditation is for 30 hours with the AMA and AAFP.

Write or phone the CME Office, M-017, UCSD School of Medicine, La Jolla, Calif. 92093—(619) 452-3940.



"I need a third opinion. The first two were exactly the same."

The Journal of the American Medical Association publishes a list of CME courses for the United States twice yearly. The January listing features courses offered from March through August; the July listing features courses offered from September through February.

Colorado Trauma Meeting

The Plastic Surgery Educational Foundation and the Rocky Mountain Chapter of the Western Orthopedic Association are sponsoring a scientific medical meeting on "Lower Extremity Trauma" at Steamboat Springs, Colo. March 17 to 20.

The registration fees will be \$500 for members of the two organizations, \$600 for guests and \$425 for residents with letter of verification.

For further information write the Plastic Surgery Educational Foundation, 233 N. Michigan Ave., Suite 1900, Chicago 60601.

Pediatric Nutrition

"Pediatric Nutrition" will be the subject of an international symposium to be conducted June 21-23 in Montreal, Canada, by the Memorial University of Newfoundland. Registration fee is \$250 to physicians.

Apply to Dr. R. K. Chandra, Janeway Child Health Centre, St. John's, Newfoundland, AlA 1R8, Canada.

Cardiac Rehabilitation

The 8th annual Cardiac Rehabilitation Symposium sponsored by the University of Wisconsin will deal with "Exercise and Heart Disease: Prevention and Rehabilitation." It will be conducted April 30 to May 3 at the Red Carpet Hotel, Milwaukee.

The symposium is accredited for 19 hours AMA category 1 credit; an additional five hours credit will be granted for the preliminary session.

For the program and details, contact Sarah Aslakson, 465B WARF Bldg., 610 Walnut St., Madison, Wisc. 53705—(608) 263-2856.

Legal Trends and Ethics

The American Society of Law & Medicine will sponsor a three-day program March 7-9 on "Legal and Ethical Aspects of Health Care for the Elderly."

The program, to be conducted at the Don CeSar Beach Resort, St. Petersburg Beach, Fla., is designed for physicians, attorneys, nurses, social workers, advocacy group representatives, and hospital and nursing home administrators. Registration fee for ASLM non-members is \$275.

Contact the ASLM at 765 Commonwealth Ave., Boston 02215 – (617) 262-4990.

Fire Safety Workshop

The National Fire Protection Association will conduct a three-day workshop on Managing Fire Safety in Health Care Facilities May 6-8 in St. Louis, Mo.

All attendees will receive a \$32.50-value "Health Care Handbook." They will also receive a copy of the 1984 "Standard for Health Care Facilities" and a "Health Care Fire Safety Compendium."

For registration and more information, contact the NFPA Division for Continuing Education, Batterymarch Park, Quincy, Mass. 02269—(617) 770-3000.

Child Care Conference

The 20th annual Indiana Multidisciplinary Child Care Conference will be held May 1-2 at the Airport Hilton Hotel, Indianapolis.

The pediatric subjects covered will include infectious diseases, sports medicine, endocrinology, neurology, adolescent medicine, and allergy. Dr. Lorraine Hendrix will be the banquet speaker.

Contact Dr. Morris Green, Riley Hospital for Children, 702 Barnhill Drive, Indianapolis 46223.

CONTINUED ON PAGE 88

Angina comes in many forms...



So does SORBITRATE® RBIDE DINITRATE)

Unsurpassed flexibility in nitrate therapy.





















Sustained Action "Swallow" Tablets

© 1985 ICLAMERICAS INC

SORBITRATE (ISOSORBIDE DINITRATE)

Please consult full prescribing information before use. A summary follows:

INDICATIONS AND USAGE: SORBITRATE (is usorbide dinitrate) is indicated for the treatment and prevention of angina pectoris. All dosage forms of isosorbide dinitrate may be used prophylactically to decrease trequency and sevently of anginal attacks and can be expected to decrease the need for sublingual nitroglycerin.

The sublingual and chewable forms of the drug are indicated for acute prophylaxis of angina pectoris when taken a few minutes before situations likely to provoke anginal attacks. Because of a slower onset of effect, the oral forms of isosorbide dinitrate are not indicated for acute prophyla is:

prophylaxis.

CONTRAINDICATIONS: SORBITRATE is contraindicated in patients who have shown purported hypersensifivity or idiosyncrasy to it or other nitrates or nitrites. Epinephrine and related compounds are ineffective in reversing the severe hypotensive events associated with dare contraindicated in this situation

oversubse and are Cottindinucated in this situation WARNINGS. The benefits of SORBITARIE during the early days of an acute myocardial inflatible have not been established. If one elects to use organic nitrates in early inflatchion hemodynamic monitoring and frequent clinical assessment should be used because of the potential deleterious effects of hypotension.

potential deterence or impotential or impotential or PRECAUTIONS: General: Severe hypotensive response particularly with upright posture, may occur with even small doses of SORBITRATE. The drug should therefore be used with caution in subjects who may have blood volume depletion from diuretic therapy or in subjects who have

subjects who may have blood volume depletion from diuretic therapy or in subjects who have low systotic blood pressure (eg. below 90 mmHg). Parado ical bradycardia and increased angina pectons may accompany nitrate induced hypotension. Nitrate therapy may aggravate the angina caused by hypotension by the properties of the state tissue experiments in the laboratory. The importance of tolerance to the appropriate use of isosorbide dinitrate in the management of patients with angina pectoris has not been determined. However, one clinical frial using treadmill exercise tolerance (as an end point) found an 8 hour duration of action of oral isosorbide dinitrate following the first dose (after a 2-week placebo washout) and only a 2-hour duration of effect of the same dose after 1-week of repetitive dosing at conventional dosing intervals. On the other hand, several finals have been able to differentiate isosorbide dinitrate from placebo after 4-weeks of therapy and, in open.

able to differentiate isosorbide dinitrate from place bu after 4 weeks of therapy and, in open trials an effect seems detectable for as iong as several months. Tolerance clearly occurs in industrial workers continuously exposed to nitroglycerin. Moreover, physical dependence also occurs since chest pain, acute myocardial infarction, and even sudden death have occurred during temporary withdrawal of nitroglycerin from the workers. In clinical trials in angina patients, there are reports of anginal attacks being more easily provoked and of rebound in the hemodynamic effects soon after nitrate withdrawal. The relative importance of these observations to the routine, clinical use of isosorbide dinitrate is not known. However, it seems prudent to gradually withdraw patients from isosorbide dinitrate when the therapy is being terminated rather than stopping the drug abruptly. Information for Patients: Headache may occur during initial therapy with SORBITRATE Headache's susually relieved by the use of standard headache remedies or by lowering the dose and tends to disappear after the first week or two of use.

Drug Interactions: Alcohol may enhance any marked sensitivity to the hypotensive effect of nitrates.

indies. Its source that the control of the control

Carcinogenesis, Mutagenesis, Impairment of Fertility: No long term studies in animals

Carcinogenesis, Mutagenesis, Impairment of Fertility: No long term studies in animals have been performed to evaluate the carcinogenic potential of this drug. A modified two illter reproduction study in rats fed isosorbide dimitrate at 25 or 100 mg/kg/day did not reveal any effects on tertility or gestation or any remarkable gross pathology in any parent or oftspring fed isosorbide dimitrate has been shown to cause a dose related increase in embryotoxicity (increase in mummified pups) in rabbits at oral doses 35 and 150 times the maximum recommended human daily dose. There are no adequate and well controlled studies in pregnant women SORBITRATE should be used during pregnancy only if the potential benefit justifies the potential risk to the fetus.

Nursing Mothers: this not known whether this drug is excreted in human milk. Because many drugs are excreted in human milk. caution should be exercised when SORBITRATE is administered to a nursing woman.

Pediatric Use. The safety and effectiveness of SORBITRATE in children has not been established.

Pediatric Use: The safety and effectiveness of SORBITRATE in children has not been established.

ADVERSE REACTIONS: Adverse reactions particularly headache and hypotension are dose related in clinical trials at vanous doses, the following have been observed. Headache is the most common (reported incidence varies widely apparently being dose related, with an average occurrence of about 25% adverse reaction and may be severe and persistent. Cutaneous vasodilation with flushing may occur. Transient episodes of dizziness and weakness, as well as other signs of cerebral ischemia associated with postural hypotension, may occasionally develop the inicidence of reported symptomatic hypotension ranges from 2% to 36%. An occasional individual will exhibit marked sensitivity to the hypotensive effects of nitrates and severe responses (nausea, vomiting, weakness restless ness pallor perspiration and collapse) may occur even with the usual therapeutic dose. Drug rash and/or exfoliative dermatitis may occasionally occur. Nausea and vomiting appear to be uncommon. Case reports of clinically significant methemoglobinemia are rare at conventional doses of organic nitrates. The formation of methemoglobin is dose related and in the case of genetic abnormalities of hemoglobin that layor methemoglobin formation, even conventional doses of organic nitrates could produce harmful concentrations of methemoglobin. ObsAGE AND ADMINISTRATION. For the treatment of angina pectoris, the usual starting dose to isubilingual SORBITRATE is 25 to 5 mg for chewable tablets 5 mg for ora (swallowed) tablets 5 vg domain and observed the incremental dose increase should be guided by meal wempetit, of standard blood resides unexplications between the incremental dose increase should be guided by meal wempetit, of standard pollodic release forms. 40 mg.

SORBITRATE should be titrated upward until angina is releved or side effects limit the dose in ambulatory patients the magnitude of the incremental dose increase should be guided by meal urement, of standing blood pressure. The initial dosage of subtingual or chewable SORBITRATE for prophylactic therapy in angina pectures patients is generally 5 or 10 mg every 2 to 3 hours. Adequate controlled clinical studies demonstrating the effectiveness of chronic maintenance therapy with these dosage forms have nurbeen reported.

SORBITRATE in oral doses of 10 to 40 mg given every 6 hours or in oral controlled release lines of 40 to 80 mg given every 8 to 12 hours is generally recommended. The extent to which livelogment of the knance should modify the dosage program has not been defined. The oral introlled release forms of isosorbide dinitrate should not be chewed.

DOSAGE FORMS AVAILABLE: Subingual Tablets (2.5.5, 10 mg). Chewable Tablets (5.10 mg).

30 40 mg) Sustained Action Tablets (40 mg)



FUTURE FILE

CONTINUED FROM PAGE 86

Evansville Seminars

The Spring Seminars of St. Mary's Medical Center in Evansville will be held in the Amphitheatre of the center on the following schedule:

March 28, 1 p.m.—The MacKenzie Seminar on Reproductive Genetics.

April 18, 1 p.m. - Part II, Geriatric Seminar: Psychiatric Problems of the Elderly.

5-Day Cardiology Course

Indiana University Medical Center will be the site next month of a fiveday program entitled, "Electrocardioraphic Interpretation of Complex Arrhythmias: A Physiological Approach.'

The program, scheduled for March 25-29, will be conducted by the American College of Cardiology, the I.U. School of Medicine and the Krannert Institute of Cardiology. Dr. Charles Fisch, Distinguished Professor of Medicine, and Dr. Douglas P. Zipes, Professor of Medicine, will be co-directors.

The registration fee is \$350 for ACC members, \$400 for non-members. The program meets the criteria for 331/2 hours of Category 1 credit.

For more information, contact the ACC, Extramural Programs Dept., 9111 Old Georgetown Road, Bethesda, Md. 20814 - (301) 897-5400, ext. 230.

GYN Malignancies

"Advances in the Management of GYN Malignancies" is the subject of a program to be held April 12 at the Airport Holiday Inn, Indianapolis.

The course, accredited for AMA Category 1 credit, will feature Dr. Taylor Wharten and Dr. Allen Lichter. It is sponsored by the Depts, of Radiation Oncology and OB-GYN, Indiana University School of Medicine.

For additional information, contact Alison Calkins, M.D., Radiation Therapy 071, 1100 W. Michigan St., Indianapolis 46223-(317) 264-2524.

Let your patients shop at home for health care products.

HOME HEALTH CAR

Our free catalog has everything from hospital beds to bandages, from diabetic syringes to wheelchairs. All delivered to your patients' doors from one of America's largest and most dependable suppliers. Your patients can order by mail or toll-free phone. They'll get fast service and phone consultation by experienced professionals. If there's a Peoples Drug Store in your area, patients may order items through the catalog at the pharmacy. You can write or call the Peoples Home Health Care Center listed below for your personal copy of the catalog for your patients' use.

FREE CATALOG PHONE TOLL-FREE (800) 368-4243



8903 Three Chopt Road, Richmond, VA 23229

INTERESTED IN AUTO LEASING?

Get the facts, leasing will save \$1000s over buying. All Makes Auto Leasing, Inc. has the equipment and know-how to show you EXACTLY where you save. So call today for a quote on the car of your choice. Besides, we lease for less, always have, always will.

Approved Credit Required

Medical Society and Hospital References Available On Request

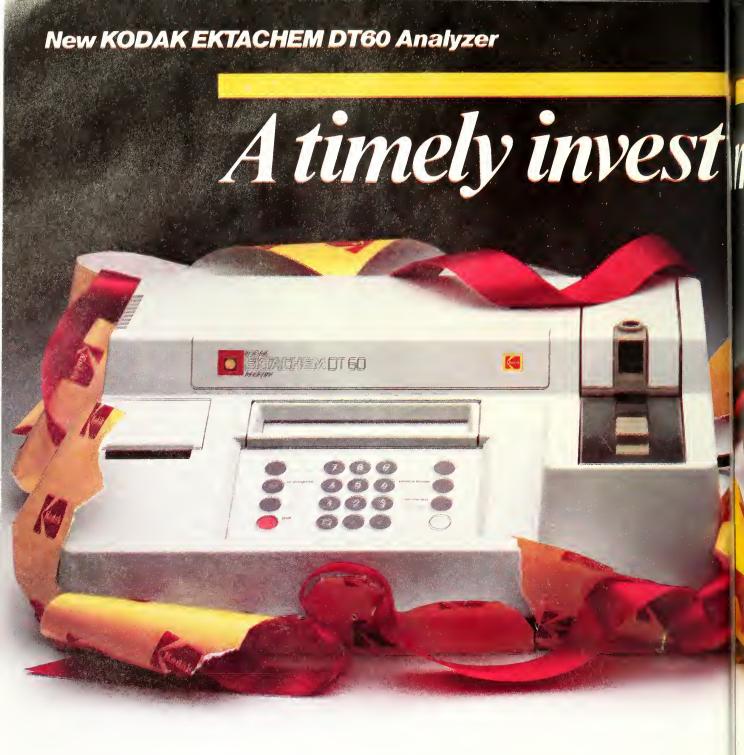
ALL MAKES AUTO LEASING, INC.

118 South Rangeline Road, Carmel, Indiana 46032

Telephone 317/844-2171

Kodak presents...





The KODAK EKTACHEM DT60 Analyzer creates an extra service for your patients without extra investment in labor. And because it can pay for itself in three months, it's a timely investment in your future.

The chemistry tests you need

With the DT60 Analyzer you perform key chemistry

tests in your own office instead of using an outside laboratory. Available tests include glucose, cholesterol, triglycerides, BUN, uric acid, sodium, and potassium, with total hemoglobin and bilirubin coming soon.

The time you need

Get test results in five minutes or less; perform

up to 75 tests an hour. Save time waiting for results to assist in your diagnosis, and on followup phone calls.

The accuracy you need

The DT60 Analyzer uses proven technology and methodology from the KODAK EKTACHEM 400 and 700 Analyzers, which

ment for your office.

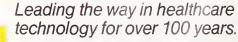


provide millions of accurate, precise results to clinical aboratories nationwide.

The simplicity you need

The DT60 Analyzer, compact as a personal computer, features dry slide technology to eliminate wet reagents. It is automated to free up your staff, and training takes only minutes. From the finger-stick sample to results printout, the DT60 Analyzer is simplicity itself.

To see what the DT60 Analyzer can do for you, write Eastman Kodak Company, Dept. 740-B, 343 State Street, Rochester, NY 14650, or call **1 800 44KODAK,** Ext 423 (1 800 445-6325, Ext 423) today.





New information from Office of the Commissioner Indiana State Board of Health 1330 W. Michigan St. Indianapofis, Ind. 46206 317-633-8400

PUBLIC BEALTH NOTES

The desire to make homes and oflices more energy efficient to save heating costs is greatly accented during the winter months. Recently, however, State Board of Health investigators have found energy efficiency to be associated with a variety of minor health problems for inhabitants of offices and homes.

Complaints of eye, nose, and throat irritation, headache, fatigue, and difficulty in breathing have been documented by residents in energy-efficient homes. The complaints have led investigators to label the problem "tight building syndrome." The offices and homes are built with heating and cooling systems to minimize fresh air infiltration, which is important in diluting air contaminants in the structures.

In office buildings, energy-efficient designs provide for outside air through recirculated air conditioning systems. The air conditioning systems are controlled to provide maximum comfort while the buildings are occupied and to go into a "standby" mode during other times. Homes today are built in the same way and contain highly efficient air conditioning systems with setback thermostats. The systems do not allow for fresh air to penetrate the structures.

For most individuals complaining of these irritants, the severity of the discomfort increases as more time is spent in the structure. Dramatic improvements are noticed by these individuals after leaving the structure and being in the outside air.

Air Contaminants

The Indiana State Board of Health Industrial Hygiene and Radiological Health Division has investigated "tight building syndrome" to better understand the magnitude of the problem. The division had to modify analytical techniques to allow easier identification of air contaminants in buildings and homes for the investigation.

Even with the modification, these

ISBH investigators found that concentrations of contaminants detected and identified were so low that it was impossible to correlate the observed health effects with the same contaminants at high concentrations in other settings. Extensive sampling by investigators in "tight building" situations did not detect high concentrations of air contaminants. Findings were below any federal Permissible Exposure Limits (PEL), National Institute of Occupational Safety and Health (NIOSH)-recommended standards, or Threshold Limit Values (TLV).

Other findings included:

- Investigations of more than 250 homes showed average formaldehyde concentrations to be 0.05 to 0.09 ppm for urea formaldehyde foam insulated homes and non-foam insulated homes, with a maximum of 1.35 ppm for a non-urea formaldehyde foam home. Other investigations of commercial buildings and schools showed formaldehyde concentrations range from 0.02 to 0.77 ppm;
- Measurements of relative humidity ranged from 30% to 90% for homes and office buildings, with an approximate average of 45%;
- Carbon monoxide levels were usually less than 2 ppm, except in some eases where faulty heating systems or negative pressures gave rise to concentrations greater than 50 ppm. Concentrations of carbon dixoide range from 200 to 3,000 ppm, with an average of 800 ppm.

Various fungi have been identified in Indiana investigations that include rhizopus, aspergillus niger, aspergillus flavus, penicillium, alternaria, and other species of saprophytic fungi.

Sources

It is not easy to discern the sources of the air contaminants detected during the investigations. Not only building materials but lifestyle of occupants can contribute to airborne contamination.

Sources of formaldehyde include par-

ticle board, interior plywood, furniture, eabinets, draperies, permanent press fabrics, and sources of combustion (such as tobacco smoke, gas cooking appliances, heating units, fireplaces, and decorative flames such as candlelight).

Tobacco smoke and other combustion sources can and do emit carbon monoxide, carbon dioxide, nitrogen oxides, other aldehydes besides formaldehyde, polynuclear aromatic hydrocarbons, trace metal oxides and airborne particulates.

Solvent vapors such as toluene, xylene, mineral spirits, and petroleum distillates are more difficult to explain. Adhesives are used in modern building construction for application of tile, carpeting and other floor coverings. Adhesives are also used in furniture and fixtures. Copy machines, computer printers, spirit duplicators, and janitorial supplies all contribute to the presence of air contaminants in offices and during home construction.

Particulates can be normal household dust or minute particles of insulation which have entered the ventilation system ductwork or been discharged into occupied spaces through lighting receptacles or electrical wall sockets and switches.

Radon, a radioactive gas resulting from the radioactive decay of radium, can be a constituent of indoor air pollution. Small amounts of uranium and elements in its decay chain are contained in many rocks and soils. Some construction materials such as concrete, granite, limestone and natural stone contain minerals with small amounts of radioactivity that can emit radon into the air. There are extremely few measurements of radon to date, however.

The bottom line in all of this is that information is severely limited regarding potential air pollutants and the decay of air pollutants from building materials, office furnishings and office and home supplies. We are sure to hear much more in the coming months about indoor air contaminants.

More than 50,000 reasons to buy your Professional Liability Insurance from the Leader.

Your peers. More than 50,000 physicians and surgeons countrywide who are insured with St. Paul Fire and Marine Insurance Company.

They know that The St. Paul is the nation's leading medical liability insurer and they know why. With more than 40 years of experience in the medical market, we offer a superior, flexible, comprehensive insurance protection plan. Take a look for yourself.

Our professional liability policy provides flexible limits to meet your own needs—individual limits of up to \$10 million. And there are no policy exclusions. All this and very competitive rates for Indiana physicians!

You may also want to select our optional Professional Office Package for your other property and liability insurance needs. And, no matter which coverages you choose, you'll receive the best possible claim-handling services available with local attorneys and our Indianapolis and South Bend our Indianapolis and South Bend offices. Not to mention our loss prevention risk management services which have established the industry standard!

So talk to one of the 167 Independent Agents representing The St. Paul in Indiana. And do it for the reasons that you like best.

Equipped to meet all your insurance needs.



Medical Services Division





St. Paul Fire and Marine Insurance Company/St. Paul Mercury Insurance Company/The St. Paul Insurance Company. St. Paul Insurance Company/The St. Paul Insurance Company of Illinois. Property and Liability A St. St. Paul Companies Inc. Saint Paul Minnesota 55102

THE INCREDIBLE STORY ABOUT IRAs THAT YOUR BANK HOPES YOU DON'T READ.

At a bank, your IRA almost always ends up sitting in a fixed-rate CD. Period.

But not at Shearson/ American Express. With us, you have the *freedom* to choose from a wide spectrum of investments. Your IRA can range from real estate partnerships to government securities, even to bank CDs. And by choosing higher yielding investments, your IRA will make your retirement more secure. In fact, just 3% more on

your IRA dollars can mean an extra \$114,000 in 25 years.

Transferring your IRA is *simple*.

So call us and hear the rest of the story.

Together, let's put minds over money.



AN AMERICAN EXPRESS COMPANY

SHEARSON/AMERICAN EXPRESS AND THE SERIOUS INVESTOR. MINDS OVER MONEY.**

Call: (317) 639-0809 Indiana Toll Free 1-800-382-1051	Or write: Joseph S. Heed, Fin: Shearson-Lehman/Ar 101 West Washingto: Indianapolis, Indiana	nerican Express, Inc. n St., Suite 1001E
☐ I like what I hear, now tell me the of the story. Please rush me your free b THE NEW IRAs.		The New
NAME (please print)		IRAS
ADDRESS		Timinim
CITY	STATE	ZIP
BUS PHONE FINSTING CLIENTS PLEASE LIST YOUR ACCOUNT NUMBER IN ORDER TO EXPEDITE HANDLING OF YOUR REQUEST	HOME PHONE Shearson/American Express Foster & Marshall/American Express Robinson-Humphrey/American Express	

The Shearson/American Express Weekly Newsletter appears in the first section of The Wall Street Journal every Monday. Look for it.

INDIANA MEDICINE offers its readers a Continuing Medical Education series of articles prepared by the faculty of the Indiana University School of Medicine. The program is coordinated and supported by a grant from the school's Division of Continuing Medical Education.

As an organization accredited for continuing medical education, the Indiana University School of Medicine certifies that this CME activity meets the criteria for one credit hour in Category 1 for the Physician's Recognition Award of the American Medical Association, provided it is used and completed as designated.

To obtain Category 1 credit for this month's article, complete the quiz on page 139.



Chronic Diverticular Disease of the Colon

JOHN L. GLOVER, M.D. WELDON EGAN, B.A. Indianapolis

COLONIC DIVERTICULUM is an acquired lesion which represents a herniation of colonic mucosa and submucosa between defects in the circular layers of colonic muscle. The diverticulum, of course, has no covering of smooth muscle. Diverticula occur predominantly in patients more than 40 years of age; the incidence of multiple diverticula, diverticulosis, increases progressively from about 5% in the fifth decade to approximately 50% in the ninth decade. The sigmoid colon is involved in more than 90% of patients. Parks reported in 1971 that the sigmoid alone was involved in 45 to 65% of patients with diverticular disease; when up to three segments of colon were studied for diverticula, the sigmoid was involved in 93% of the cases. A remarkable difference in the incidence of diverticular disease exists between economically underdeveloped countries and Western industrialized countries. The reason for this difference seems to be related to diet. notably to the use of foods that contain highly refined carbohydrates and are high in fats and low in fiber content.¹⁰

Inflammation is the most frequent complication of diverticulosis, develop ing in up to one-third of patients; one third of those with inflammatory complications have persistent symptoms. In other words, approximately 11% of patients with diverticulosis will develop chronic diverticulitis. This estimate, however, is subject to inaccuracies related to the number of asymptomatic cases and the difficulty of distinguishing between diverticu losis and diverticulitis in symptomatic patients. Consequently, some authors prefer the term, "diverticular disease" to include both entities and do not attempt to separate patients into one category or the other.

Pathogenesis of Diverticulitis

Diverticula readily fill with colonic contents, but emptying is slow because of the narrow neck and the lack of

From the Dept. of Surgery, Wishard Memorial Hospital, Indiana University School of Medicine, 1001 W. 10th St., Indianapolis, Ind. 46202.

musculature of the diverticulum. If an inspissated fecal plug obstructs the neck of a diverticulum, continued mucous secretion and proliferation of colonic bacteria distend the flask-shaped diverticulum and produce inflammation at its apex. Diverticulitis is thus thought to start as an inflam mation of a single diverticulum, with other diverticula becoming secondarily involved as edema from the initial diverticulitis narrows their necks, prevents emptying, and initiates additional inflammation.

The symptoms and signs of acute diverticulitis resemble those of appendicitis except that they usually occur on the left side, thus accounting for the term "left-sided appendicitis." Patients usually have pain in the left lower quadrant of the abdomen, or over the involved diverticula, with associated tenderness and rigidity. Nausea and vomiting may occur, and temperature and white blood cell count are elevated. Bleeding may be present, usually in the form of blood-streaked stools. The symptoms may persist for a few days and then subside, in which case they often recur. Usually the inflamed diverticulum is sealed off by adherence of adjacent tissues, with a resulting peridiverticulitis and often with localized abscess formation. In such cases, there is significant elevation of temperature and leukocyte count with an increase in abdominal pain and development of a tender mass in the left lower quadrant. The inflammatory mass may resolve, may increase or vary in size, or may perforate into the free abdominal cavity resulting in peritonitis. It may also perforate into an adjacent hollow viscus or to the exterior through the abdominal wall, to form an internal or external fistula. The most common internal fistula is between the sigmoid colon and the urinary bladder.

Clinical Presentations

Chronic diverticulitis may not only cause persistence of the signs and symptoms of acute diverticulitis but also may result in bowel obstruction.

Clinically, obstruction may be seen in 10 to 25% of patients hospitalized for diverticular disease of the colon. The causes for obstruction in diverticulitis include ileus secondary to pus in the peritoneal cavity, narrowing of the colonic lumen by hypertrophied smooth muscle and associated redundancy of the mucosa, smooth muscle spasm associated with the inflammation, pericolic or intramural abscesses, narrowing of the lumen from fibrosis secondary to inflammation, and adhesions between colon and adjacent loops of intestine. Diverticular disease is sec ond only to carcinoma as a cause of colonic obstruction in adults.

About 5% of patients with diverticulosis present with fistula formation, the rate being higher if one considers only surgical eases. Colovesical fistulas account for approximately half of all fistulas associated with diverticulitis, about 75% of these being in males. One explanation given for the differing sexual incidence is the protection afforded the bladder by the uterus and the broad ligaments. Pneumaturia and fecaluria are pathognomonic of colovesical fistulas.

Evolution of Surgical Treatment

Surgery for diverticular disease of the colon is reserved for those patients who have complications, including recurring attacks of acute diverticulitis and, thus, chronicity of the disease. Elective operations are obviously preferable to emergency procedures because of significant differences in reported mortality rates, ranging from 1.6% in elective cases to 15% or more in acutely ill patients. Indications for elective resection in cases of chronic diverticulitis listed by various authors⁴ are as follows:

- 1. Recurrent attacks of local inflammation.
- 2. Diverticulitis not promptly responsive to medical therapy.
- 3. Dysuria, pneumaturia, or fecaluria associated with diverticulosis.
- 4. Functional colonic disturbance associated with lower abdominal

discomfort and diverticulosis.

- 5. Rapid progression of symptoms from time of onset.
- 6. Clinical or radiologic signs too equivocal to rule out carcinoma.

Prior to 1940, the general consensus was that diverticulitis should be treated by temporary transverse colostomy, based on the belief that closure could be performed without resection after the infection had subsided. In a classic report in 1942, Smithwick showed that such treatment was unsuccessful in nearly half the cases. Furthermore, considering all methods used to treat patients with diverticular disease, he found that a third of the late survivors were "not well" and that an additional 8 to 9% died later from the disease. His conclusions, which changed the course of treatment, were that drainage alone was inadequate; that diversion alone, while better, was not acceptable; and that resection of the diseased segment was the treat ment of choice, in spite of significant mortality rates.13 He proposed preliminary diversion, followed in three to six months by resection, with later closure of the colostomy-the three-stage method which is still used by many surgeons and which was associated with great improvement in morbidity and mortality.

Nearly 30 years later, Byrne still spoke favorably about the three-stage method described by Boyden in 1950. ¹² He based his reservations about one-stage resection on the death of one of seven patients, which he deemed preventable because it was related to dehiscence of the colonic anastomosis and reflected "either the judgment or the technical ability of the operating surgeon." Boyden, on the other hand, had suggested resection and anastomosis without diversion only in patients whose colons could be thoroughly emptied and properly prepared. For such patients, Waugh and Walt reported one stage resection and anastomosis with only one surgical mortality among 93 patients, 18 of whom had fistulas.14 They stressed the

importance of avoiding tension on the anastomosis and resecting bowel beyond the limits of the inflammation caused by the disease.

While many surgeons accepted a one-stage operation for patients who could be prepared properly, controversy remained concerning clinical presentations which were intermediate between elective and general surgery. Nunes advocated using the Hartmann procedure for such patients and was lauded in discussion of the paper by Boyden, who had advocated its use in acute diverticulitis. In his comments, Boyden referred to the three-stage method as a "time-worn" procedure which had unacceptable morbidity.

Morgenstern, on the other hand, in 1979 called attention to the fulminant nature of persistent infection and fistulae in elderly, debilitated patients, coining the term, "malignant diverticulitis." He felt that the three-stage method or diversion alone might produce lower mortality rates in such patients.

At the other end of the spectrum of this illness is surgery for patients with symptoms but few or no complications of the disease. Reilly began performing longitudinal myotomy for such patients in 1962, on the premise that hypertrophy of the muscle was responsible for the inflammatory complica tions of diverticular disease. His procedure consisted of incising the circular muscle of the colon between the two antimesenteric taenia from a few centimeters above the rectosigmoid sigmoid junction to a point in normal colon, one or two centimeters above thickened colon.11 Studies of comparable groups of patients showed that myotomy lowered intralumenal colonic pressure more than resection but that these changes reverted toward preoperative values as time passed. 12 Both groups of patients showed more normal responses if given bran regularly.

A different type of myotomy was proposed by Hodgson; multiple transverse incisions were made in both antimesenteric taenia at 2cm. intervals, in stepwise fashion, from the rectosigmoid junction until normal, untickened taenia were encountered. To date, the number of patients reported is small and the length of follow-up short. As with longitudinal myotomy, the first problem is defining the indications to perform what Mr. Reilly terms these "curious British operation(s)."

Current Recommendations

As with cancer and trauma involving the colon, surgical treatment for diverticulitis involves individualization of treatment. For those patients who are not actually ill and whose colons are not obstructed, one-stage resection and anastomosis is preferable if certain conditions can be met. The nutritional status must be adequate, and cardiopulmonary reserve must be sufficient to withstand a major operation. If obstruction is not present, nutritional status may be corrected preoperatively by hyperalimentation. Ability to prepare the colon is of paramount importance, and if one finds the colon less than adequately prepared at surgery, he should choose an alternate procedure. Adequate mobilization of the colon to avoid tension on the suture line is essential, as is resection of bowel to areas uninvolved with inflammation. It is probably important to resect to the rectosigmoid junction distally; but it is probably not important to remove every single proximal diverticulum when operating for inflammatory disease, in contrast to operating for bleeding. The latter seems to be a disease of the total colon, whereas inflammation is primarily a disease of the left colon. One might, for example, choose not to perform total abdominal colectomy when operating for healed inflammatory disease in a patient with sparse diverticula in the transverse colon. Technical perfection in performing the anastomosis is obviously important and is probably easier to achieve with a Baker type of anastomosis.

In 1923, Henri Hartmann proposed

the procedure which bears his name for treatment of cancer in the left colon; and Boyden, in 1950, suggested its use for treatment of diverticulitis, suggesting division of the left colon a short distance above the rectosigmoid junction rather than at it.1.5 This procedure has the advantage of excising the focus of inflammation and avoiding the continued fecal contamination associated with leaving a segment of unprepared and usually partially obstructed colon between a transverse colostomy and a perforated diverticulum. The extent of proximal resection is not critical, as long as it is proximal to the inflammation and allows formation of a proper colostomy. This procedure is used for patients in whom a one-stage resection is not possible because of obstruction or the need to operate relatively urgently because of persistent inflammation or an inflammatory mass. Relying on this procedure for those in whom a primary resection is not feasible because of timing or the state of preparation of the colon, it is possible to treat most patients in one or two stages instead of three. Better understanding of preparation of the colon, of the choice of antibiotics, of the use of nutritional support, and of the need for physiological monitoring and support have decreased the morbidity and mortality which Smithwick called attention to when he pointed out the importance of removing the diseased segment of colon. Nonetheless, there are still a few patients so ill and/or so debilitated that resection of a phlegmonous mass due to diverticulitis may be too risky. In these cases, transverse colostomy and drainage, which could be done using local anesthesia if necessary, may be indicated.

Considerations of the number of stages of treatment of any disease are becoming more important because of changes in payment for hospitalization. The bill for a Medicare patient admitted because of diverticulitis would be paid according to Diagnosis Related Group (DRG) #182, if he were over 70,

99

or #183 if he were between 65 and 69 years of age. In either case, only five days of hospitalization is allowed: a typical university hospital would receive about \$2,800 for the former and \$2,500 for the latter. If the patient were under 70 and admitted for resection of diverticulitis, acute or chronic, the DRG would be #149, allowing 15 days of hospitalization and paying about \$10,000. If the patient had a complication or a co-morbid condition, or were over 70, 17 days of hospitalization and about \$11,500 would be allowed. Whereas many patients may be treated appropriately within such time and expense limitations, many of these patients - especially patients with acute diverticular disease-will be hospitalized significantly longer and require more hospital resources than is reflected in these artificially derived

The place of myotomy is still not clear, even according to its advocates, because of the usual questions associated with recommending an operation for patients primarily to relieve symptoms. Current evidence suggests it may be useful in patients who have failed intense nonoperative management if they exhibit increased sigmoid pressure and motility in response to food or medication.¹²

Since most operations are done for complications of diverticular disease, the results are generally excellent. Depending on how vigorously one pursues follow-up care, however, as many as 28% of patients continue to have some abdominal complaints. Such figures probably reflect our limited understanding of pathophysiology and indicate the importance of educating patients (and the general public) about the apparent importance of diet in preventing or limiting the development of diverticular disease of the colon.

In the past, patients were often placed on low residue diets and told to avoid raw fruits and vegetables, as well as foods with seeds. Nearly opposite advice is given today, there being uniform agreement that a diet high in residue is helpful. Some physicians favor use of unprocessed bran as a dietary supplement, whereas others prescribe hydrophilic colloids and stool softeners. All these measures increase the water and solid material in the stool and usually result in more frequent, or at least more regular, bowel movements. These measures apparently reduce the likelihood of large increases in pressure in isolated segments of the colon, thereby decreasing the chance of obstruction of the neck of a diverticulum and converting a common anatomic abnormality into a disease with significant morbidity and mortality.

REFERENCES

- Boyden AM: The surgical treatment of diverticulitis of the colon. Ann Surg, 132:94, 1950.
- Byrne JJ, Garick EI: Surgical treat ment of diverticulitis. Am. J. Surg, 121:379-382, 1971.
- 3. Colcock BP, Stahmann FD: Fistulas complicating diverticular disease of the sigmoid colon. *Ann Surg*, 175:838-846, 1972
- Edelmann G: Surgical treatment of colonic diverticulitis: A report of 205 cases. Int Surg, 66:119-124, 1981.
- 5. Hartmann H: Chirurgie du Rectum. Paris, Masson et Cie, 1931, pp 344-356.
- Hodgson WJB, et al: Transverse taeniamyotomy in localized acute diverticulitis. Am. J. Gastroenterol, 71:61-67, 1979.
- 7. McConnell DB, ct al: Experience with colovesical fistula. Am J Surg,

- 140:80-84, 1980.
- Morgenstern L, Weiner R, Michel SL: Malignant diverticulitis. Arch Surg, 114:1112 1116, 1979.
- Nunes GL, et al: The Hartmann procedure for complications of diverticulitis. Arch Surg, 114:425-427, 1979.
- Parks TG: Natural history of diverticular disease of the colon. Clin Gastroenterol, 4:53:60, 1975.
- 11. Reilly M: Sigmoid myotomy; Part I. Cha Gastrocuterol, 4:121-135, 1975.
- 12. Smith AN: Sigmoid myotomy; Part II. Clin Gastroenterol, 4:135-142, 1975.
- 13. Smithwick RH: Experiences with the surgical management of diverticulitis of the sigmoid. *Ann Surg*, 115:969, 1942.
- Waugh JM, Walt AJ: An appraisal of one stage anterior resection in diverticulitis of the sigmoid colon. Surg Gynecol Obstet, 104:690, 1957.



If you recognize Tad's father, you'll recognize the name of one of the largest life insurance companies in America.

Lincoln. It's a name you'll remember.

 ${f B}$ enefits available to members of the Indiana State Medical Association and their employees through expanded ISMA group sponsored Lincoln National Life health insurance coverage:

MEDICAL PLAN 1

• 365 Days of Inpatient Hospital Care

• 100% payment semi-private or hospital ward room

including the cost of blood 365 Days In-Hospital Medical Care Reasonable and Customary allowances for surgery, maternity, general anesthesia, medical visits, and radiation therapy

\$500 Supplemental Accident

• Unlimited Major Medical Benefits

MEDICAL PLAN 2

• Comprehensive Major Medical expense protection-\$500 Calendar Year Deductible

Unlimited Maximum Benefits

MEDICAL PLAN 3

• Comprehensive Major Medical expense protection - \$250 Calendar Year Deductible

Unlimited Maximum Benefits

MEDICAL PLAN 4

• Low cost comprehensive Major Medical expense protection—\$2,000 Calendar Year Deductible Unlimited Maximum Benefits

NEW DENTAL PLAN

 Reasonable and Customary allowances for necessary care and treatment for dental health

\$1,500 Maximum Dental Benefit per person in a Calendar Year

The Lincoln National Life Insurance Company is most pleased to be underwriting the Group Medical and Dental Programs for the Indiana State Medical Association. Your benefit programs have been designed to provide the highest quality coverage and service at the lowest possible cost. A special claim paying unit has been established in our Indianapolis Group Benefits and Service Office to handle only the ISMA program. Should you have questions or problems, you may speak directly to your claim processor at 317-846-6211/800-692-6014. We look forward to serving your association and encourage your review of the programs and services being provided.

For more information call or write:

James D. Townsend or Earl W. Williams Professional Account Representatives 8900 Keystone Crossing, Suite 500 Indianapolis, Indiana 46240 (317) 846-7502 or (317) 844-3119

Tom Martens Director, Health Insurance Administration Indiana State Medical Association 3935 North Meridian Street Indianapolis, Indiana 46208 (317) 926-4424 1-800-382-1721



The Lincoln National Life Insurance Company Fort Wayne, Indiana

A member of Lincoln National Corporation

Pediatric Critical Care Medicine

An Editorial

GABRIEL J. ROSENBERG, M.D. Indianapolis

HE SECOND HALF of the 20th century has produced an explosion of knowledge, which has improved the care of critically ill patients. The pathophysiology of life-threatening processes such as shock, respiratory failure, and increased intracranial pressure has been extensively explored. Advances in patient monitoring techniques, pharmacology, and improved transport systems are but a few of the factors which have drastically changed the nature of critical care.

Interestingly, the benefactors of these recent advances have mainly been of two different age groups: adults and newborn infants. There has been a proliferation of intensive care units (ICUs) organized to care for adult patients. These may be multidisciplinary or organized on the basis of organ systems. For example, there are coronary care units, surgical ICUs, cardiothoracic units, medical ICUs, and neurosurgical ICUs. There has also been a geometric progression in the number of neonatal ICUs in the United States. Ironically, the care of the critically ill pediatric patient is still not

as well organized—especially in terms of segregation according to age and size.

One may question why there is such a lag in this specific area. Partly it is because the specialty of pediatrics is perceived as having a lower status in the medical profession generally as well as in the academic and scientific communities. Also, it is often mistakenly assumed that the pediatric patient is simply a smaller version of the adult. For most communities, the volume of critically ill children from infancy through adolescence does not begin to justify a local pediatric intensive care unit (PICU) when one must consider the requirements of staffing, facilities, and ultra-modern equipment. The unit would not be cost-effective. Finally, business technology generally has less interest in developing devices that do not have high volume demand. Years may pass between the introduction of equipment designed for adults and its availability for use in pediatric patients.

Children have special medical needs. It is appropriate to provide for the unique critical care needs of children in pediatric intensive care units dedicated exclusively to children. Care is provided by pediatric intensivists pediatric specialists with training in pediatric critical care medicine, including advanced skills in monitoring and life-support techniques and experience with all aspects of management of patients with complicated illnesses and trauma affecting multiple organ systems. The pediatric intensivist staff must be full-time with around the-clock availability. Presence of fellow(s) and/or resident house staff without responsibilities outside the PICU must be considered the standard for optimum delivery of pediatric critical care. These dedicated physicians, who are familiar with the details of each patient's problems and management, can therefore make the appropriate critical decisions at any time.

Other recognized prerequisites for optimum pediatric critical care medicine include:

- 1. Nursing and allied health personnel specially trained in the care of critically ill *pediatric* patients.
- 2. Availability of pediatric resuscitation and respiratory therapy equipment and drugs.
- 3. Extensive monitoring and alarm systems for continuous assessment of all physiological functions.
- 4. 24-hour laboratory, radiology and pharmacy services.
- 5. Regionalization of all above personnel, services and equipment in one geographic area of the hospital, i.e., the PICU.

An effective and safe transportation network along with an emergency department experienced with the handling of critically ill children must complement the PICU.

Pediatric intensive care is a specialized area of hospital-based pediatrics which represents a specific body of knowledge of critical care medicine. There is increasing recognition of the degree of sophistication implicit in the term "intensive care." This has culminated in a new subspecialty just being developed, which reflects the advances in this field. During its most recent national convention (September 1984), the American Academy of Pediatrics had its first

Dr. Rosenberg is Director of Pediatrics, Children's Pavilion, Methodist Hospital of Indiana, Inc., Indianapolis, Ind. 46202.

Acknowledgments: The author wishes to thank his colleagues, Drs. Stephen K. Nugent and Charlene E. Graves, for their helpful suggestions and critique.

organizational meeting of the Pediatric Critical Care Medicine section. There is significant activity on a national level relative to formal certification of special competency in pediatric critical care medicine.

Beginning with this issue of IN DIANA MEDICINE, a monthly feature will discuss interesting aspects of pediatric critical care medicine. Whether a case presentation, management of a specific problem, discussion of newer trends and therapeutic

modalities, or consideration of psychological, ethical, or medico-legal issues, Stephen K. Nugent, M.D.*, senior author of this column, will help readers of INDIANA MEDICINE gain valuable and practical information helpful in the triage, stabilization, and management of critically ill pediatric patients. Dr. Nugent also welcomes

*Dr. Nugent is Medical Director, Pediatric Intensive Care, Children's Pavilion, Methodist Hospital of Indiana, Inc., Indianapolis, Ind. 46202. and encourages other physicians and non-physician support personnel actively involved in the care of critically ill pediatric patients to submit relevant articles to the editor of Indiana Medicine.

REFERENCE

 The Committee on Hospital Care of the American Academy of Pediatrics and the Pediatric Section of the Society of Critical Care Medicine's publication, "Guidelines for Pediatric Intensive Care Units," Critical Care Medicine, 11:9, 753 760, 1983.

Indiana's School Asbestos Screening Program

The following report, prepared by the Indiana State Board of Health, concerns the status of friable asbestos-containing ceiling and wall material in Indiana schools as of Aug. 31, 1984.

Introduction

A voluntary program to identify asbestos in elementary and secondary, public and private schools was developed in 1977 as a result of finding friable asbestos-containing ceiling material in some schools in Indiana in early 1977. The screening program was initiated in 1978 and was a cooperative effort between local health departments and the Industrial Hygiene and Radiological Health Division, Indiana State Board of Health. The major efforts were done between 1978 and 1981 prior to the EPA rule on Identification and Notification of Friable Asbestos-Containing Material in Schools, effective June 28, 1982. This rule placed the

responsibility at the local education administration level.

The records of Indiana's voluntary program were made available to the Environmental Protection Agency, Region V, Asbestos Coordinator. Additional confirmation samples were analyzed when requested. Documentation was provided to local health agencies to help them to assist the school to meet the record requirements of the EPA rule.

During the summer of 1983, the U.S. EPA initiated compliance inspections out of all regional offices to determine the extent of compliance with the school asbestos rule.

Results

Elementary and secondary schools, both public and private, were surveyed by the local health departments as part of the School Asbestos Screening Program.

An estimate made at the time data were being developed was that approximately 159 schools in the state would contain friable asbestos-containing ceiling and wall materials. The first report indicated that 102 schools were identified as containing friable asbestos ceiling and wall material.

Additional data developed from April 1983 to the end of August 1984 have added an additional 33 schools to the list of those containing friable asbestos-containing material. Also, four schools were removed from the list as a result of independent sampling and better material description. At this time, there are 131 schools identified with friable asbestos-containing ceiling and wall material. There has been remedial action taken in 95 of the schools and five schools have been closed.

Analytical services are still provided for schools that desire additional samples to be analyzed.

Adult Respiratory Distress Syndrome in a Pediatric Patient



STEPHEN K. NUGENT, M.D. Indianapolis

the Following Case is that of a child who arrived at a small emergency room cyanotic and in severe respiratory distress having aspirated kerosene. Discussion will emphasize emergency room and pediatric intensive care unit (PICU) management priorities.

Case Report

A coughing, cyanotic, 16-month-old 10.1 kg boy was found on the kitchen floor beside a spilled, clear plastic bottle of light blue kerosene lamp oil. In the emergency room he was lethargic, cyanotic and tachypneic. A 4.0 mm internal diameter (I.D.) oral endotracheal tube (ETT) was placed and the stomach emptied with a nasogastric tube. The first arterial blood gas (ABG) on 100% oxygen, 10 cm of positive end-expiratory pressure (PEEP), and an intermittent mandatory ventilator (IMV) rate of 20/minute revealed a pO₂ of 34 mm Hg, pCO₂ 34 mm Hg, and pH 7.38.

Upon admission to the PICU he was cyanotic but his eyes were open and he was appropriately agitated. His respiratory rate was 60/minute characterized by retractions and coarse diffuse wheezing. Initial ventilator settings included an IMV rate of 20/minute, 100% oxygen, 10 cm PEEP, and a tidal volume of 160 cc (15 ec/kg). Initial ABG revealed a pO₂ of 36 mm Hg, pCO₂ 60 mm Hg, and pH 7.01. A large leak around the 4.0 mm I.D. ETT necessitated a change to a 4.5 mm I.D. uncuffed tube and the PEEP was increased to 14 cm. Aminophylline was given intravenously.

The patient was breathing rapidly with intense contraction of intercostal and abdominal musculature. It was difficult to tell by visualization or auscultation when the ventilator was delivering a breath. Hence, he was paralyzed with pancuronium (Pavulon) and sedated. Intravenous fluids were restricted, a radial artery catheter was placed, and a 5 French thermal dilution Swan-Ganz pulmonary artery catheter placed via the right femoral vein. Initial values included a pulmonary artery occluded pressure (PAOP, "wedge pressure") of 7 mm Hg (n. 5-12) and mean pulmonary artery pressure (PA) of 19 mm Hg (n. 15). An arterial pO₂ of 60 mm Hg, a slightly acidotic pH, and a hemoglobin of at least 12 grams were desired to optimize oxygen delivery and minimize inspired oxygen concentration.

By the next day, having added an inspiratory pause and lowered the ventilator flow rate (lengthened the inspiratory time), the patient remained paralyzed with ventilator settings of 40% oxygen, 14 cm PEEP, 20 breaths/minute. Arterial pO₂ was 69 mm Hg, pCO₂ 52, pH 7.35. Arterial blood gases and ventilator settings changed little over the next five days. Of prognostic significance, PA reached a maximum of 25 mm Hg. Cardiac index, mixed venous oxygen saturation (SvO2), and pulmonary vascular resistance index measurements were made, especially in response to PEEP changes. From the second day the patient received either enteral (nasogastric) and/or parenteral (central venous) calories. A temperature elevation resulted in antibiotic therapy which was based upon results from routine tracheal, blood, and urine surveillance cultures. Bilateral

Dr. Nugent is Medical Director, Pediatrie Intensive Care Unit, Methodist Hospital of Indiana, Inc., 1604 N. Capitol Ave., Indianapolis, Ind. 46206.





FIGURE 1: Day of admission pulmonary artery catheter place- FIGURE 2: Day after admission on 14 cm. PEEP. ment x-ray.

pneumothoraces required chest tubes.

On the sixth day of hospitalization paralysis was discontinued to allow spontaneous cough and ventilation. Four days later the patient was extubated and subsequently discharged 20 days after admission.

Emergency Room Management

The management priorities to be discussed apply to any pediatric patient in acute respiratory distress from peripheral airway and/or parenchymal lung disease. One principle (neuromuscular paralysis for intubation) may not apply to acute upper airway obstruction, a topic to be discussed in coming months.

The priority in this obtunded, cyanotic child is effective oxygenation and airway protection. Endotracheal intubation of the infant and pediatric patient may prove more difficult than adult intubation as it is performed less frequently by most physicians. Visualization of smaller airway anatomy is more difficult; the tongue, especially in the infant, may take up a larger part of the oropharynx; the epiglottis is longer, less well structurally supported, and forms a more acute

angle covering the glottis than in the adult: and the infant or child is less likely to cooperate with the procedure.

Anatomically, the narrowest part of the infant and pediatric airway is in the subglottic area within the cricoid cartilage. An ETT that passes through the cords may be too large for the subglottic area, causing mucosal ischemia, edema, and the possibility of airway obstruction from edema or stenosis. Correct choice of ETT size is crucial as too large a tube may cause subglottic narrowing and too small a tube may result in ineffective ventilation. A 3.5 mm I.D. or 4.0 mm I.D. tube is used from birth through 1 year, a 4.0 or 4.5 tube from 1 to 2 years. Beyond 2 years, an easily remembered formula to determine uncuffed ETT size is [16 + age in years] divided by 4. For example, a six-year-old child would require a 5.5 mm I.D. tube. A straight rather than curved laryngoscope blade is used in the pediatric patient to pick up the epiglottis with the tip of the blade for optimum cord visualization. Emergency intubation in the unstable patient should be oral with elective nasal intubation reserved for later hemodynamic or respiratory stability.

Uncuffed polyvinylchloride ETT are used in children younger than 7-8 years to avoid further subglottic trauma from the ETT cuff. If a cuffed airway is used, air should be placed into the cuff to just eliminate a leak around the tube which might occur at the peak of a ventilator or manual breath.

A skillful pediatric intubation cannot be accomplished without equipment appropriately sized for the child. This includes ETT, suction catheters for the smallest infant ETT, larvngoscope blades for infancy through adult, and manual ventilating apparatus including bag and masks of all sizes. The manual ventilating apparatus must deliver 100% oxygen from a reservoir bag or tubing, as oxygen is the most important "drug" in the acute management of respiratory distress or cardiorespiratory arrest in pediatric patients.

With the appropriate equipment assembled, the patient can be intubated following 2-3 minutes of preoxvgenation with 100% oxygen if time allows. Large-bore suction should be at hand for suctioning airway secretions and/or emesis. If one is comfortable with managing the apneic patient and

has an understanding of the indications for and pharmacology of muscle relaxants, an option other than "awake" intubation would be to use atropine (.015 mg/kg IV) and bolus succinylcholine (2 mg/kg IV). Intravenous sedation can be added if hemodynamic stability is present. A controlled atraumatic intubation is the goal as the patient would not be moving, fighting, and coughing. Gentle compression of the cricoid cartilage against the anterior vertebral body (Sellick maneuver) by an assistant at the time the succinylcholine is injected may help prevent esophageal reflux.

Once the ETT is placed, attention to detail continues. The tube must be securely taped using benzoin and cloth tape. An oropharyngeal airway cut off at the top of its curve can be inserted to prevent biting the tube and provide more stability to an oral ETT. Chest x-ray is mandatory to assure correct positioning of the tip of the ETT which on x-ray should sit at the uppermost part of the T3 vertebral body (see Figures). Wrist restraints, gauze mittens, or eleft palate restraints to prevent elbow flexion will prevent reaching for and possibly dislodging the ETT. The ETT should be briefly disconnected from the manual ventilating apparatus when moving the patient from cart to bed so that the patient is not pulled away from the taped ETT.

Once intubated, effective ventilation and oxygenation is the goal. Ventilator settings vary according to patient age and size. A volume ventilator (Bear, MA-1, MA-2, Servo 900) delivers a consistent tidal volume regardless of changes in the patient's lung disease and compliance and is the ventilator of choice beyond one year. A 15 cc/kg tidal volume is a reasonable starting point with changes based upon observation of chest expansion and auscultation of breath sounds. Until proper ETT position is confirmed and a first ABG obtained, 100% inspired oxygen concentration assures maximum oxygenation. Initial ventilator rate may range from 12 (adolescent) to 30 (infant). Subsequent rate changes are based upon ABG and clinical assessment of respiratory distress.

The IMV mode allows the patient to breathe between a set number of ven tilator breaths. Intravenous sedation (typically Valium 0.1mg/kg or morphine 0.1mg/kg) may calm the patient and result in more effective mechanical ventilation. In the patient with marked tachypnea and use of accessory respiratory muscles, the ventilator must overcome not only the poorly compliant lungs but also a stiff chest wall, both of which contribute to an overall reduced pulmonary compliance. Neuromuscular paralysis with pancuronium (0.1 mg/kg IV) increases pulmonary compliance by relaxing chest wall and accessory muscles. A lower peak inflating pressure, a more even distribution of ventilator tidal volume, and improvement in arterial pO2 typically results. Intravenous sedation and pain relief are continuously administered with the neuromuscular blocker.

With severe hypoxemia and adult respiratory distress syndrome (ARDS) pathophysiology, 7-10 cm of PEEP is initially appropriate. In the intubated patient with normal lungs, 2-4 cm of PEEP ("physiologic PEEP") would be appropriate, while for the severe asthmatic with hyperinflated lungs PEEP might not be used at all. A commonly neglected ventilator setting is the flow rate of gas delivering the tidal volume. Flow rate should be adjusted to provide a clinically adequate inspiratory time and optimal distribution of tidal volume. An inspiratory time of .75-1.0 seconds is adequate for most patients. While knowledge of age- and size-appropriate ventilator settings is important, nothing substitutes for watching the chest rise and fall, listening to the ventilator deliver a breath, and immediate assessment of oxygenation and ventilation by ABG and obscrving the patient.

Other emergency room considerations include placement of a

nasogastric or orogastric tube to evacuate air and gastric contents and allow optimum diaphragmatic excursion and lung expansion. Peripheral venous access is a priority. If unsuccessful from a percutaneous extremity standpoint, saphenous vein cutdown or percutaneous external jugular or femoral vein catheterization may be required. A Teflon intravenous catheter is preferable to a butterfly needle catheter. Given hemodynamic stability, initial fluid restriction is important relative to the ARDS pathophysiology described below. Lastly, if care in a PICU is required, transport arrangements should be initiated as soon after the patient arrives at the emergency room as possible.

PICU Management Priorities

As in the emergency room, the initial priority is attention to airway and adequacy of oxygenation and ventilation. In this case, a larger airway was immediately required as was neuromuscular paralysis for reasons described above. Subsequent management was based upon the diagnosis of hypoxemia from kerosene aspiration with ARDS pathophysiology. Characterized by sudden onset of impaired oxygenation, bilateral diffuse alveolar haziness on x-ray (Figure 1), and a normal PAOP (permeability versus hemodynamic pulmonary edema), several series have described the syndrome in pediatrics.123

Adult respiratory distress syndrome is the clinical manifestation of injury to the terminal alveolar-capillary unit. Treatment, as in the adult, is directed at decreasing interstitial lung water, increasing air containing lung volume (functional residual capacity), and at identifying and treating a precipitating event such as sepsis, shock, massive aspiration, etc.

Fluid restriction, diuretics, and maintenance of a low-normal pulmonary capillary hydrostatic pressure, i.e., PAOP, are the priorities in minimizing interstitial lung water. Bedside flow directed pulmonary artery catheteriza-

tion for obtaining PAOP measurements is accomplished in infants and children with the use of 4 or 5 French pulmonary artery catheters typically placed percutaneously via a femoral vein.

A recognized indication for pulmonary artery catheterization is optimizing PEEP and volume therapy in ARDS.⁴ Positive end-expiratory pressure increases lung volume, functional residual capacity, and improves matching of ventilation to perfusion. The goal in severe ARDS is to increase PEEP until inspired oxygen concentration is minimized⁵ (ideally 40% oxygen or less) while maintaining tissue oxygen delivery, i.e., cardiac output times content of oxygen in arterial blood.

Assessment of oxygen delivery requires thermal dilution cardiac output measurements and/or SvO₂ measurements, hence the importance of pulmonary artery catheterization in optimizing the care of the severe ARDS patient whether pediatric or adult. In

addition, assessment of $\overline{P}A$ and pulmonary vascular resistance is important from a prognostic standpoint. Pediatric patients with ARDS who survive usually demonstrate elevation in $\overline{P}A$ and pulmonary vascular resistance during the first 36 hours with gradual improvement thereafter. In contrast, $\overline{P}A$ and pulmonary vascular resistance increase progressively in patients who die.

Other management priorities are those for any critically ill pediatric patient. These include systemic peripheral arterial catheterization for frequent, accurate, painless blood drawing and continuous blood pressure monitoring; early aggressive nutritional support; ongoing attention to renal function, input and output, and daily weight; routine infection surveillance; and gastrointestinal bleeding prophylaxis with nasogastric antacids.

The pathophysiologic management principles of ARDS are similar for adults and children. Knowledge and

technical skills unique to pediatrics and the PICU are required for optimum implementation of these principles.

REFERENCES

- Holbrook PR, Taylor G, Pollack MM, Fields AI: Adult respiratory distress syndrome in children. Pediatr Clin North Am, 27:677, 1980.
- Lyrene R, Truog W: Adult respiratory distress syndrome in a pediatric intensive care unit: Predisposing conditions, clinical course and outcome. *Pediatrics*, 67:790, 1981.
- Pfenninger J, Gerber A, Tschappeler H, Zimmerman A: Adult respiratory distress syndrome in children. J Pediatr, 101:352, 1982.
- Goldenheim PD, Kazemi H: Cardiopulmonary monitoring of critically ill patients. N Engl J Med, 311:717, 776 (two parts), 1984.
- Weisman IM, Rinaldo JE, Rogers RM: Positive end-expiratory pressure in adult respiratory failure. N Engl J Med, 307:1381, 1982.
- Katz R, Pollack M, Spady D: Cardiopulmonary abnormalities in severe acute respiratory failure. J Pediatr, 104:357, 1984.

Look-Alike and Sound-Alike Drug Names

BENJAMIN TEPLITSKY, R. PII. Brooklyn, N.Y.

Look-alike and sound-alike drug names can be misinterpreted by a nurse reading doctors' orders or by a pharmacist compounding physicians' prescriptions. Such misunderstandings can result in the administration of a drug not intended by the prescriber. Awareness of such look-alike and sound-alike drug names can reduce potential errors. Category: Brand Name: Generic Name: Dosage Forms:

Category; Brand Name; Generic Name; Dosage Forms; V-CILLIN Antibiotic V-Cillin K, Lilly Penicillin V Tablets, Powder for Oral Solution

TEGRETOL
Trigeminal neuralgia
Tegretol, Geigy
Carbamazepine
Tablets

WYCILLIN Antibiotic Wycillin, Wyeth Penicillin G, Procaine Injection

TEGRIN Antiseborrheic Tegrin, Block (combination drug) Shampoo, Cream, Lotion

The Coronary Artery Surgery Study: A Critical Review

WILLIAM K. NASSER, M.D. JOHN D. SLACK, M.D. CASS A. PINKERTON, M.D. Indianapolis

The Authors Analyze
the CASS Report,
Pointing Out Those
Discrepancies That
Many Clinicians Have
Found Disappointing . . .

Study (CASS) is a multi-center project comparing the middle-term (approximately five-year) clinical course of selected patients randomly assigned to medical or surgical treatment of angiographically documented coronary artery disease. 1,2

It was hoped that the CASS results would finally clarify a number of "unresolved" issues regarding coronary artery bypass surgery (CABS). Unfortunately, clinicians have generally been disappointed with the overall interpretation of CASS, even though the investigators used impeccable language and stated their conclusions clearly and concisely. This problem seems to stem from a primary misinterpretation of the goals of CASS, which intended to study only patients with minimal angina pectoris, excluding "high-risk" patients from randomization. In addition to this, the "quality of life" report, which supported the superiority of bypass surgery over medical therapy, was overshadowed by the report regarding five-year survival.1

The danger of the Coronary Artery Surgery Study report (CASS), published in the November 1983 issue of *Circulation*, is that the information presented, when misinterpreted, could be misapplied to patients who are not low-risk patients but are thought to be so. For this reason, it is our intention to critically analyze the CASS report and attempt to point out discrepancies.

Enrollment Restrictions

The CASS project included 24,959 patients who had coronary arteriography at one of 15 medical centers between 1974 and 1979. Of this group, 16,626 patients were screened

for eligibility for randomization, of whom 2.099 (12.7%) were considered eligible, but only 780 (4.7%) were randomized. The reasons for this small number are not totally apparent, but it is known that some of the patients refused to participate in the study, their physicians would not allow them to participate, and symptoms, as well as coronary artery anatomy determined by coronary arteriography, would not permit inclusion into the study. Similar problems with randomization were encountered during enrollment for the VA Cooperative Study on unstable angina, in which one of us participated (JDS).

The investigators carefully defined the subset of patients to be described in the CASS report to be either asymptomatic or only mildly symptomatic with stable angina pectoris (Canadian classification), and all had coronary arteriography and left ventriculography. This permitted the investigators to exclude: Patients with Class III and IV stable angina, unstable angina, high-grade obstruction of the left main coronary artery, poor ventricular function (ejection fractions of 35% or less), and all patients over the age of 65 years. These conditions are known to mark the patients having a poor five-year survival.37 It allowed them to include patients with: Single vessel disease (27.4%), double vessel disease (39.5%), good ejection fractions, obstructions in the left anterior descending coronary artery which were distal to the first septal perforator (71.7%). All of these conditions are known to further mark patients having a good five-year survival. The existence of this good risk group of patients has, of course, been known for many years.

From the Section of Cardiology, Dept. of Internal Medicine, St. Vincent Hospital and Health Care Center, Indianapolis, Ind.

Correspondence: William K. Nasser, M.D., St. Vincent Professional Building, Suite 413, 8402 Harcourt Road, Indianapolis, Ind. 46260.

Survival vs Quality of Life

The fact that patients in this study who had bypass surgery enjoyed a significantly better quality of life than patients who were treated medically has been dwarfed by the comments regarding the survival of this good risk group of patients. It is a well known fact that patients who have bypass surgery have their quality of life improved compared to medically treated patients.8 This is underscored by the fact that surgical patients had better exercise tolerance and less ST segment displacement during treadmill tests when compared to patients treated medically.8 Surgical patients needed less medication to relieve angina pectoris than patients treated medically. This is important to realize since some patients cannot tolerate medications, especially beta blockers. These drugs, valuable as they are, often have side effects that are frequently responsible for the poor quality of life exhibited by patients who take them.

'High Risk' Sub-groups

There are three important subgroups of patients: those with significant left main coronary artery stenosis; high-grade proximal obstruction of the left anterior descending coronary artery and stenosis of either the right or circumflex coronary artery; and those with triple vessel coronary artery disease. These patients have been reported by other studies to be at increased risk of dying with medical treatment versus surgical treatment. 5,6,9

The CASS report failed to provide significant data about the fate of patients with high-grade disease of the LAD proximal to the first septal perforator in one- or two-vessel disease. Previous studies, including the randomized prospective European Coronary Surgical Study Group (ECSSG), pointed out the special risk to survival posed by this disease. It is well known that patients with severe proximal lesions in the LAD or "left main equivalent disease" have a high mor-

bidity and/or mortality. The threat of damage to large amounts of eardiac muscle is a constant fear to the cardiologist and cardiovascular surgeon. ¹⁰ Intervention with coronary artery bypass surgery (CABS)¹¹ or percutaneous transluminal coronary angioplasty (PTCA)¹² appears to be the treatment of choice in these patients.

The CASS report did not show any significant difference in five-year survival when comparing medical to surgical patients with triple vessel coronary artery disease. However, 38% of the patients with three-vessel disease assigned to medical treatment crossed over to surgical treatment, almost half of them in the first 12 months after randomization. The 38% of surgical patients with three-vessel disease who crossed over are included as medically treated patients.

This, in effect, further diminishes the size of an already small sample of truly medically treated patients with threevessel disease. Furthermore, the cost of medical care may have been greater for some of the patients who "crossed over" and had surgery, than it would have been if surgery had been performed initially.

Another NIH study deserves comment. Kent & Associates 13 found that 147 patients who had either no angina or only mild angina, but had triple vessel coronary artery disease with poor exercise performance on treadmill, had a 9% annual mortality (45% five-year mortality rate). The risk is that, as a result of misinterpretation of the significance of the CASS data, patients in these three previously mentioned sub-groups may be denied consideration for surgical intervention because they have only "mild" angina.

Angioplasty vs CABS

Although percutaneous transluminal coronary angioplasty (PTCA) was not available during the CASS report, it has been shown that many of these patients can obtain considerable relief from angina and improvement in the quality of life with this form of non-

surgical intervention.¹⁴ This procedure has been shown to be the most cost efficacious treatment of coronary artery disease presently available.¹⁵

Summary

The CASS report did direct the attention of physicians and the population at large that each year there were patients undergoing unnecessary coronary artery bypass surgery. From this perspective, this study did shed considerable light upon physicians who were inexperienced with the selection of patients for medical versus interventional therapy. Even before publication of the CASS report, it would have been unusual and questionable in 1983 to find experienced cardiologists and cardiovascular surgeons recommending coronary artery bypass surgery to patients with minimal symptoms with single or double vessel coronary artery disease in the absence of proximal lesions in the left anterior descending coronary artery.16

The investigators of the CASS report were excellent. The reports themselves were well written and the authors should be congratulated. The danger of the Coronary Artery Surgery Study is that the information presented, when misinterpreted, could be misapplied to patients who are not low-risk patients, but thought to be so. The study did not indicate that patients who have mild symptoms always have mild coronary artery disease.17 The study discussed here indicated the superiority of bypass surgery when compared to medical therapy in relieving angina pectoris. It is good to have this confirmed over and over again.

REFERENCES

- 1. Coronary Artery Surgery Study (CASS): A randomized trial of coronary artery bypass surgery survival data. Circulation, 68:939-950, 1983.
- Coronary Artery Surgery Study (CASS): A randomized trial of coronary artery bypass surgery: Quality of life in patients randomly assigned to treatment groups. Circulation, 68:951-960, 1983.
- 3. Cosgrove DM, Loop FD, Sheldon WC:

- Results of myocardial revascularization. Creatation, 65 (suppl 2):3743, 1982
- Whalen RE, Harrell FE Jr, Lee KL, Rosati RA: Survival of coronary artery disease patients with stable pain and normal left ventricular function treated medically or surgically at Duke University. Circulation, 65 (suppl 2549 52, 1984.
- Hammermeister KE, DeRouen TA, Dodge HT: Comparison of survival of medically and surgically treated coronary disease patient — Seattle Heart Watch: A randomized study. Circulation, 65 (suppl 2):53-59, 1983.
- 6. Takaro T, Hultgren HN, Delre KM, Peduzzi P: The VA cooperative study of stable angina. *Circulation*, 65 (suppl 2):60-67, 1982.
- 7. Russell RO, Rackley CE, Kouchoukos NT: Unstable angina peetoris: Management based on available information. Circulation, 65 (suppl 2):72-77, 1982.
- 8. Rahimtoola SH: Postoperative exercise response in the evaluation of the physiologic status after coronary

- bypass surgery. Circulation, 65 (suppl 2):106-119, 1982.
- 9. European Coronary Surgery Study Group: Prospective randomized study of coronary artery bypass surgery in stable angina pectoris: A progress report on survival. *Circulation*, 65 (suppl 2):67-71, 1982.
- Ouyang P, Brinker JA, Mellits ED, Weisfeldt ML, Gerstenblith G: Variables predictive of successful medical therapy in patients with unstable angina: Selection by multivariate analysis from clinical, electrocardiographic and angiographic evaluations. Circulation, 70:367-376, 1984.
- 11. King SB III, Hurst JW: The relief of angina pectoris by coronary bypass surgery. In Update II: The Heart. (Ed., Hurst JW). McGraw-Hill Book Company, New York, 1980, p. 71.
- Hollman J, Gruentzig AR, King SB III, Douglas JS: Percutaneous transluminal coronary angioplasty. In Clinical Essays on the Heart, Vol. 2. (Ed., Hurst JW). Mc-Graw-Hill Book Company, New York, 1984, p. 297.

- Kent KM, Rosing DR, Ewels CJ, Lip son L, Bonow R, Epstein SE: Prognosis of asymptomatic or mildly symptomatic patients with coronary artery disease. Am. J. Cardiol, 49:1823-1831, 1982.
- Pinkerton CA, Slack JD, VanTassel JW, Orr CM, Smith ML, Dickos DK, Nasser WK: Percutaneous transluminal coronary angioplasty: Update 1983. Indiana Medicine, 77:676-81, 1984.
- Reeder GS, Krishan I, Nobreya FT, Naessens J, Kelly M, Christianson JB, McAfee MR. N Engl J Med, 311:1157-1162, 1984.
- DeBakey ME, Lawrie GM: The coronary artery surgery study. JAMA, 252:2609 2611, 1984.
- 17. Hultgren HN, Peduzzi P: Relation of severity of symptoms to prognosis in stable angina. *Am J Cardiol*, 54:988-993, 1984.

ACKNOWLEDGMENT:

The authors express their sincere appreciation for the expert manuscript preparation by Judy Emerson.

Dx: recurrent herpes labialis

"Herpecin-L Lip Balm is the treatment of choice for peri-oral herpes." GP, New York

"In the management of herpes labialis, Herpecin-L is a conservative approach with low risk / high benefit." Derm., Miami

"Staff and patients find Herpecin-L remarkably effective." Derm., New Orleans

OTC. See *P.D.R.* for information. For trade packages to make your own clinical evaluation, write:

CAMPBELL LABORATORIES INC.
P.O. Box 812-M, FDR, NY, NY 10150

Herperin-L Lip Balm Lip Balm Sig: Q.h. Sig: needed

Herpecin-L

In Indiana, "HERPECIN-L" Cold Sore Lip Balm is available at all Hook, Peoples, Revco, Ribordy and SupeRx Drug Stores and other select pharmacies.

Maternalism: A Sound Concept in Medicine

RENATE G. JUSTIN, M.D. Terre Haute

uttonomy and paternalism are two important principles widely discussed in bio-medical ethics literature. Maternalism, a third principle of equal importance, as yet, has not been defined. All three—paternalism, autonomy, and maternalism—reflect a philosophy of medical practice and deserve elaboration.

The term autonomy is usually applied to the competent person's wish (or right) for self-determination. For patients, that means they are free to decide whether or not to accept the advice rendered by the physician, and they are free and able to approve, alter, or reject treatment plans. It means that the physician will inform patients of available options and share their deliberations, but the responsibility for the final decision rests with the patients.

Paternalism, on the other hand, presupposes that a patient does not want to, cannot, or should not make decisions other than those suggested by the physician. The consultation and detailed discussion of options, essential if the patient's autonomy is to be the ruling principle, is not necessary to the same degree when paternalism is primary. The physician makes decisions with the patient's best interest in mind and does not burden the patient with choosing between various treatments.

Paternalism describes a fatherly attitude on the part of the physician. That attitude projects benevolence toward patients and implies that the

Correspondence: Health Science Complex, 400 E. 8th Ave., Terre Haute, Ind. 47804.

physician is knowledgeable, has insight and can help patients by making decisions. The physician identifies with the shepherd caring for the flock, the general looking after the troops, the king governing his subjects, or the father who is the head of his family, responsible for the well-being of its members. "It takes the locus of decision-making away from the patient and places it in the hands of the professional."

A third principle which has not been previously defined is maternalism. It describes a doctor-patient relationship of caring and nurturing which addresses not only the patient's need for medication, but also the need for understanding, empathy, and affection. Maternalism seeks compromise. The maternalistic physician's model is the negotiator, coordinator, the mender of fences, the diplomat.

In the maternalistic mode of practice, the patient and physician jointly make decisions. The physician considers the patient able to assist in formulating a plan of treatment and actively invites expressions of feelings and opinions. If viewed on a continuum, the paternalistic physician is most likely to make decisions for patients. The maternalistic physician looks at decision-making as a shared process, and autonomy places decision-making with the patient.

Paternalism, even though using the male as a model, is, of course, not limited to male physicians any more than maternalism is limited to female physicians. No matter which style suits a particular physician best, all three principles are components of the doctor-patient relationship and are used constantly in various combinations, depending on the needs of an individual patient or special situation. This will be illustrated by cases seen in everyday practice.

Autonomy

The 57-year-old banker with recurrent ovarian cancer wants to be involved in all decisions concerning her treat ment. She insists on informing her daughter of her wish not to be kept alive once she can no longer golf, play bridge, and enjoy herself. She needs the physician's assurance that her autonomous wishes will be honored, no matter what the doctor and her family desire.

Paternalism

In contrast, the 68-year-old engineer with hemoptysis, who is diagnosed as having squamous cell lung cancer, refuses to be involved in outlining his treatment in spite of his intellectual ability. He becomes like a child and wants his wife and physician to make decisions for him. He wants his doctor to become his parent, at least tem porarily, and relieve him from dealing with the reality of his illness.

In this situation, although explaining his treatment plan to him, in the final analysis, the physician makes decisions for the patient. An impasse would result if the doctor would try to force this competent adult to make a decision. The engineer prefers to surrender his autonomy and be treated paternalistically.

Maternalism

The diabetic teacher who is persuaded to participate in a religious healing ceremony and discontinue her insulin is obviously endangering her life. Her physician explains the pros and cons of discontinuing insulin and enlists with her in the experiment. She gives permission to monitor her blood sugar and general condition carefully. A contract is made that if the religious experiment fails, she will consent to go back on her insulin. A compromise is

negotiated; the patient's wishes are respected; the doctor patient relation ship is maintained.

This case is an example of maternalism, compromise, negotiated agreement. A paternalistic physician would insist on the use of insulin, whereas one concerned chiefly with the patient's autonomous rights might let the teacher go without insulin, taking a chance that she would change her mind before the onset of diabetic coma.

Physicians differ in how they blend the principles of autonomy, paternalism, and maternalism. Consider the case of an intelligent woman who has breast cancer, chooses to have surgery, and has positive nodes. She is well aware of all her options and decides to use laetrile plus chemotherapy. She is referred to an oncologist who refuses to give her chemotherapy if she insists on using laetrile.

This physician feels uneasy letting respect for the patient's autonomy overrule his conviction, based on scientific certainty, that laetrile is useless. He sees only a choice of not treating at all or treating in accordance with his considered advice. The referring physician decides that to accommodate the patient's need for some control when her autonomy is at stake, letting her take laetrile plus chemotherapy is more important than adherence to strict, scientific principles. The refer-

ring physician is trying to compromise. Maternalism characterizes this interaction, whereas the oncologist's response is more paternalistic.

The doctor-patient relationship changes over a period of time and so does the maternalistic/paternalistic/autonomous ratio in that relationship. When seriously ill, patients often want to regress, to be mothered, to be cared for; they need nurturing and sympathy. Debilitated patients are frequently incapable of and do not wish to make decisions. They want to lean on a paternalistic physician who will tell them what needs to be done.

When recovered, they want to regain autonomy and respect. A physician must be keenly aware and sensitive to the changing demands of the doctor-patient relationship. Forcing a seriously ill patient to act autonomously is poor medicine as is not respecting the autonomy of an adult able to make decisions.

Another case illustrates that in a single doctor-patient encounter, a physician needs and uses all of the three principles discussed above. A teenage girl has a positive pregnancy test. While discussing her options of carrying the child, adoption, or abortion, the physician acts in a caring, warm, empathic manner. The goal is to clarify the young woman's thinking by explaining the choices in detail and

sharing with her in the decision-making process. The physician acts in a maternalistic manner.

The girl decides to carry the pregnancy, but fails to keep her prenatal appointments during the third trimester. The physician realizes she is afraid of delivery and thinks she can delay labor by not acknowledging the pregnancy. At this point, the physician becomes paternalistic and, for the patient's well-being, insists that she keep her appointments and enroll in prenatal classes. She is given little choice but to comply with the doctor's instructions.

After delivery, the question of breast or formula feeding has to be decided. In discussing this issue at various times, the patient is given all the facts but allowed to act autonomously in reaching a decision. Her judgment prevails.

These are examples of the ballet of autonomy, paternalism, and maternalism. The three principles cannot dance alone but must compliment each other, collaborate with each other to perfect the rhythm of the doctor-patient relationship.

REFERENCE

 Veatch, Robert M. "Models for Ethical Medicine in a Revolutionary Age." Hastings Center Report. Vol. 2, June 1972. Pp. 5-7.

INDIANA MEDICAL BUREAU

1010 East 86th St.—72 Winterton Indianapolis 46240 844-7933

A Licensed Employment Agency Specializing in Medical Personnel

Since 1952

New studies uncover the potassium effects of beta-2 blockade

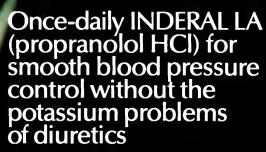
Clinical pharmacology data from The New England Journal of Medicine:

...when normal young men are given infusions of epinephrine at levels such as those that circulate in patients with myocardial infarction, their serum potassium concentrations fall by about 0.8 [mmol] per liter. Hypokalemia is prevented by selective beta-2 blockade."

Evidence that all beta blockers are not created equal.

Right from the start in hypertension...





Once-daily INDERAL LA (propranolol HCl) avoids the risk of diuretic-induced ECG abnormalities due to hypokalemia.^{2,3} In addition, INDERAL LA preserves potassium balance without additive agents or supplements while providing simple, well-tolerated therapy with broad cardiovascular benefits.

Once-daily INDERAL LA for the cardiovascular benefits of the world's leading beta blocker

Simply start with 80 mg once daily. Dosage may be increased to 120 mg to 160 mg once daily as needed to achieve additional control.

Like conventional INDERAL tablets, INDERAL LA should not be used in the presence of congestive heart failure, sinus bradycardia, heart block greater than first degree, and bronchial asthma.

or beta-1/beta-2 blockade

Once-daily
INDERAL LA
(PROPRANOLOL HCI) LONG ACTING
CAPSULES







The appearance of these capsules is a registered trademark of Ayerst Laboratories.

0 mg 120 mg 160 mg

Please see brief summary of prescribing information on the next page for further details.

BRIEF SUMMARY (FOR FULL PRESCRIBING INFORMATION SEE PACKAGE CIRCULAR.)
INDERAL* LA brand of propranoiol hydrochlonde (Long Acting Capsules)
DESCRIPTION. Inderal LA is formulated to provide a sustained release of propranoiol hydrochlonde, inderal LA is available as 80 mg. 120 mg. and 160 mg capsules
CLINICAL PHARMACOLOGY. INDERAL is a nonselective beta-adrenergic receptor blocking agent possessing in other autonomic nervous system activity. It specifically competes with beta-adrenergic receptor sities with beta-adrenergic receptor sities with beta-adrenergic receptor sities is blocked by INDERAL. The chronotropic inotropic, and vasodilator responses to beta-adrenergic stimulation are decreased proportionately.
INDERAL LA Capsules (80.120, and 160 mg) release propranoiol HCI at a controlled and predictable rate. Peak blood levels following dosing with INDERAL LA occur at about 6 hours and the apparent plasma hall-life is about 10 hours. When measured at steady state over a 24 hour period the areas under the propranoiol plasma concentration time curve (AUCs) for the capsules are approximately 60% to 65% of the AUCs for a comparable divided daily down of the propranoiol resulting from the slower rate of absorption of propranoiol. Over a twenty-four (24) hour period blood levels are fairly constant for about twelve (12) hours then decline exponentially.

hour period blood levels are fairly constant for about twelve (12) hours then decline exponentially. INDERAL LA should not be considered a simple mg for mg substitute for conventional propranolol and the blood levels achieved do not match (are lower than) those of two to lour times daily dosing with the same dose. When changing to INDERAL L4 from conventional propranolol a possible need for retitration upwards should be considered especially to maintain effectiveness at the end of the dosing interval. In most clinical settings, however, such as hypertension or angina where there is little correlation between plasma levels and clinical effect. INDERAL LA has been therapeutically equivalent to the same mg dose of conventional INDERAL La. as assessed by 24-hour effects on blood pressure and on 24-hour evercise responses of heart rate systolic pressure and rate pressure product. INDERAL LA can provide effective beta blockade for a 24-hour effect.

Among the factors that may be involved in contributing to the antihypertensive action are (1) decreased cardiac output. (2) inhibition of renin release by the kidneys, and (3) diminution of fonic sympathetic nerve outflow from vasomotor centers in the brain Although total peripheral resistance may increase initially it readjusts to or below the preferatment level with chronic use. Effects on plasma volume appear to be minor and somewhat variable. INDERAL has treatment of hypertensive patients.

use Effects on plasma volume appear to be minor and somewhat variable inDERAL has been shown to cause a small increase in serum potassium concentration when used in the treatment of hypertensive patients. In angina pectoris propranoiol generally reduces the oxygen reguirement of the heart rate any given level of effort by blocking the catecholamine-induced increases in the heart rate systolic blood pressure and the velocity and extent of myocardial contraction. Propranoiol may increase oxygen reguirements by increasing left ventricular fiber length, end diastolic pressure and systolic ejection period. The net physiologic effect of beta-adrenergic blockade is usually advantageous and is maintested during exercise by delayed onset of pain and increased work capacity. In dosages greater than required for beta blockade INDERAL also exerts a quinidine-like or anesthetic-like membrane action which affects the cardiac action potential. The significance of the membrane action in the treatment of arrhythmias is uncertain. The mechanism of the antimigraine effect of propranoiol has not been established. Beta adrenergic receptors have been demonstrated in the pial vessels of the brain. Beta receptor blockade can be useful in conditions in which because of pathologic or functional changes, sympathetic activity is detrimental to the patient. But there are also situations in which sympathetic stimulation is vital. For example, in patients with severely damaged hearts, adequate ventricular function is maintained by virtue of sympathetic drive which should be preserved in the presence of AV block greater than tirst degree, beta blockade may prevent the necessary facilitating effect of sympathetic activity on conduction Beta blockade results in bronchial constriction by interfering with adrenergic bronchodilator activity, which should be preserved in patients subject to bronchospasm.

INDICATIONS AND USAGE. Hypertension: INDERAL LA is indicated in the managehypertension, it may be used alone or used in combination with other antihypertensive particularly a thiazide diuretic. INDERAL LA is not indicated in the management of

Angina Pectoris Due to Coronary Atherosclerosis: INDERAL LA is indicated

he long-term management of patients with angina pectoris

Migraine: INDERAL LA is indicated for the prophylaxis of common migraine headache
efficacy of propranoiol in the treatment of a migraine attack that has started has not been
whiched and propraedly and the patient by a suph uses

Hypertrophic Subaortic Stenosis: INDERAL LA is useful in the management of hypertrophic Subaortic Stenosis: INDERAL LA is useful in the management of hypertrophic subaortic stenosis: INDERAL LA is useful in the management of hypertrophic subaortic stenosis especially for treatment of exertional or other stress-induced angina palpitations and syncope INDERAL LA also improves exercise performance. The effectiveness of propranoiol hydrochloride in this disease appears to be due to a reduction of the elevated outflow pressure gradient which is exacerbated by beta-receptor stimulation.

the elevated outriow pressure gradient which is exacerbated by sed receptor standard Constraints (clinical improvement may be temporary CONTRAINDICATIONS. INDERAL is contraindicated in 1) cardiogenic shock. 2) sinus bradycardia and greater than first degree block. 3) bronchial asthma. 4) congestive heart failure (see WARNINGS) unless the failure is secondary to a tachyarrhythmia freatable with 1900AL.

INDERAL WARNINGS. CARDIAC FAILURE Sympathetic stimulation may be a vital component sup-porting circulatory function in patients with congestive heart failure, and its inhibition by beta blockade may precipitate more severe failure. Although beta blockers should be avoided in overt congestive heart failure, if necessary they can be used with close follow-up in patients with a history of failure who are well compensated and are receiving digitalis and diuretics. Beta-adrenergic blocking agents do not abolish the inotropic action of digitalis on heart

IN PATIENTS WITHOUT A HISTORY OF HEART FAILURE continued use of beta blockers can, in some cases, lead to cardiac failure. Therefore, at the first sign or symptom of heart failure, the patient should be digitalized and/or treated with diuretics, and the response observed closely or INDERAL should be discontinued (gradually, if possible).

IN PATIENTS WITH ANGINA PECTORIS, there have been reports of exacerbation of IN PATIENTS WITH ANGINA PECTORIES, there have been reports of exacerbation of angina and in some cases myocardial infarction following abrupt discontinuance of INDERAL therapy. Therefore when discontinuance of INDERAL is planned the dosage should be gradually reduced over at least a few weeks, and the patient should be cautioned against interruption or cessation of therapy without the physician's advice If INDERAL therapy is interrupted and exacerbation of angina occurs it usually is advisable to reinstitute INDERAL therapy and take other measures appropriate for the management of unstable angina pectoris. Since coronary artery disease may be unrecognized it may be prudent to follow the above advice in patients considered at risk of having occult atherosclerotic heart disease who are given propranolot for other indirenties.

Nonallergic Bronchospasm (e.g., chronic bronchitis, emphysema)-PATIENTS WITH BRONCHOSPASTIC DISEASES SHOULD IN GENERAL NOT RECEIVE BETA BLOCKERS. INDERAL should be administered with caution since it may block bronchodila-

tion produced by endogenous and exogenous catecholamine stimulation of beta receptors
MAJOR SURGERY. The necessity or desirability of withdrawal of beta-blocking therapy
prior to major surgery is controversial. It should be noted however, that the impaired ability of the heart to respond to reflex adrenergic stimuli may augment the risks of general anesthesia and surgical procedures



The appearance of these capsules is a registered trademark of Ayerst Laboratories

INDERAL (propranolol HCl) like other beta blockers, is a competitive inhibitor of receptor agonists and its effects can be reversed by administration of such agents dobutamine or isoproteenol. However, such patients may be subject to protracted s hypotension. Difficulty in starting and maintaining the heartbeat has also been reporter.

DIABETES AND HYPOGLYCEMIA Beta-adrenergic blockade may prevent the

DIABLIES AND HYPOGLYCEMIA Beta-adrenergic blockade may prevent tripearance of certain premonitory signs and symptoms (pulse rate and pressure changacute hypoglycemia in labile insulin-dependent diabetes. In these patients, it may be
difficult to adjust the dosage of insulin.

THYROTOXICOSIS Beta block-dae may mask certain clinical signs of hyperthyro.

Therefore abrupt withdrawal of propranoloi may be followed by an exacerbation of sympolity propranoloi may be tollowed by an exacerbation of sympolity propranoloi may be several cases have reported in which after propranoloi the tachycardia was replaced by a severe brady
reguiring a demand pacemaker. In one case, this resulted after an initial dose of
propranoloi.

PRECAUTIONS. General Propranolol should be used with caution in patients with imperent or renal function. INDERAL (propranolol HCI) is not indicated for the treatment hypertensive emergencies.

hypertensive emergencies

Beta adrenoreceptor blockade can cause reduction of intraocular pressure Poshould be told that INDERAL may interfere with the glaucoma screening test. Withdraw lead to a return of increased intraocular pressure.

Clinical Laboratory Tests. Elevated blood urea levels in patients with severe heart dis elevated serum transaminase, alkaline phosphalase, lactate dehydrogenase.

DRUG INTERACTIONS. Patients receiving catecholamine-depleting drugs such as pine should be closely observed if INDERAL is administered. The added catecholablocking action may produce an excessive reduction of resting sympathetic nervous a which may result in hypotension. marked bradycardia. hypotension

repotension Carcinogenesis, Mutagenesis, Impairment of Fertility. Long-term studies in animals been conducted to evaluate toxic effects and carcinogenic potential. In 18-month studioth rats and mine, employing doses up to 150 mg/s/day, there was no evidence of sign drug-induced toxicity. There were no drug-related tumorigenic effects at any of the dilevels. Reproductive studies in animals did not show any impairment of fertility that attractions to the drug of the control of the co

levels. Reproductive studies in animals did not snow any impairment of attributable to the drug. Pregnanc: Pregnancy Category C. INDERAL has been shown to be embryote animal studies at doses about 10 times greater than the maximum recommended human. There are no adequate and well-controlled studies in pregnant women INDERAL is be used during pregnancy only if the potential benefit justifies the potential risk to the Nursing Mothers. INDERAL is excreted in human milk. Caution should be exercised INDERAL is administered to a nursing woman. Pediatric Use. Safety and effectiveness in children have not been established.

ADVERSE REACTIONS. Most adverse effects have been mild and transient and rarely required the withdrawal of therapy. Cardiovascular bradycardia congestive heart failure intensification of AV block tension paresthesia of hands, thrombocytopenic purpural arterial insufficiency, usually Raynaud Type.

Raynaud type

Central Nervous System lightheadedness, mental depression manifested by institute, weakness, latique reversible mental depression progressing to catatona, disturbances, hallucinations an acute reversible syndrome characterized by disoriental time and place short-term memory loss, emotional lability, slightly clouded sensorium decreased performance on neuropsychometrics.

Gastrontestinal nausea vomiting epigastric distress, abdominal cramping, de constipation, mesenteric arterial thrombosis, ischemic colitis. Allergic pharyngitis and agranulocytosis erythematous rash fever combined with and sore throat laryngospasm and respiratory distress.

Respiratory bronchospasm.

Hematologic agranulocytosis, nonthrombocytopenic purpura thrombocyto

purpura Auto-Immune In extremely rare instances, systemic lupus erythematosus has

Miscellaneous alopecia, LE-like reactions psoriasitorm rashes, dry eyes, male tence, and Peyronie's disease have been reported rarely. Oculomucocutaneous resembly onlying the skin serous membranes and conjunctivae reported for a beta blocker (pre

Involving the skin serous membranes and conjunctivae reported for a beta blocker (prahave not been associated with programolol posage and administration. INDERAL LA provides propranolol hydrochlory, sustained-release capsule for administration once daily. If patients are switched from INI tablets to INDERAL LA capsules care should be taken to assure that the desired there effect is maintained. INDERAL LA should not be considered a simple mg for mg substition. INDERAL IA has different kinetics and produces lower blood levels. Retitration be necessary especially to maintain effectiveness at the end of the 24-hour dosing in HYPERTENSION. Dosage must be individualized. The usual initial dosage is INDERAL LA once daily whether used alone or added to a duretic. The dosage in increased to 120 mg once daily or higher until adequate blood pressure control is ad The usual maintenance dosage is 120 to 160 mg once daily in some instances a dosage mg may be required. The time needed for full hypertensive response to a given dos variable and may range from a few days to several weeks.

ANGINA PECTORIS—Dosage must be individualized. Starting with 80 mg INDER once daily, dosage should be gradually increased at three to seven day intervals until or response is obtained. Although individual patients may respond at any dosage lev average optimum dosage appears to be 160 mg once daily in angina pectoris the valiately of dosage exceeding 320 mg per day have not been established. If treatment is to be discontinued reduce dosage gradually over a period of a tew (see WARNINGS).

MIGRAINE—Dosage must be individualized. The initial oral dose is 80 mg INDER once daily. The usual attentive dose variations is 100 and one of a lew (see WARNINGS).

(see WARNINGS) MIGRAINE—Dosage must be individualized. The initial oral dose is 80 mg INDEF once daily. The usual effective dose range is 160-240 mg once daily. The dosage if increased gradually to achieve optimum migraine prophylaxis. If a satisfactory responsionation within four to six weeks after reaching the maximum dose, INDERAL LA the should be discontinued. It may be advisable to withdraw the drug gradually over a persent all weeks.

Several weeks
HYPERTROPHIC SUBAORTIC STENOSIS—80-160 mg INDERAL LA once daily
PEDIATRIC DOSAGE—At this time the data on the use of the drug in this age group?

REFERENCES

HEFERENCES
1. Epstein FH. Rosa RM. Adrenergic control of serum potassium. N. Engl. J. Med. 309 1450-1451. 2. Holland. OB. Nixon, JV. Kuhnert L. Diuretic-induced ventricular eactivity. Am. J. Med. 1981,70.762-768. 3. Holme I., Helgeland A., Hjermann I., et al. Treating in the dispersion with diuretics. The importance of ECG abnormalities in the Oslo study. JAMA 1984 251 1298-1299



Ayerst | AYERST LABORATORIES | New York N Y 10017

Copyright © 1984 AYERST LABORATORIES Division of AMERICAN HOME PRODUCTS CORPORATION

Continuous Monitoring of Blood Gases in the Intensive Care Unit and Operating Room

Part 2: Invasive Monitoring of Oxygenation

Critical Care Medicine

DAVID COOK, M.D. Indianapolis

ART 1 IN THIS SERIES discussed non invasive techniques for monitoring arterial blood oxygen as a measure of the effectiveness of the first or ventilatory phase of respiration. Current systems for non-invasive monitoring, however, do not evaluate all aspects of the complex process of assuring adequate delivery to and utilization of oxygen by the body tissues. This article, therefore, will discuss invasive monitoring of oxygenation through all phases of respiration involving the pulmonary and cardiovascular systems, and peripheral tissue extraction of oxygen.

Invasive Monitoring of the Ventilatory Phase of Respiration

The goal of monitoring is to provide clinically useful information continuously, especially in patients with combined cardiopulmonary failure. In some cases this must be done even at the cost of forfeiting the advantages of the non-invasive methods discussed earlier. Transcutaneous and conjunctival oxygen monitors and ear ox-

The author, a pulmonologist, is Director, Dept. of Respiratory Care, Methodist Hospital of Indiana, Indianapolis. imeters provide only limited information in patients with very poor capillary pulse pressures, e.g., shock, and therefore are inadequate to supply the needed information in such patients.

Just as O2 saturation can be measured by transmission co-oximetry (measuring light absorption as light passes through a blood sample) as is used in the ear oximeter, it can be measured by reflectance co-oximetry (absorption measured as light is reflected back from a blood sample). A specially designed arterial catheter incorporating two fiberoptic filaments uses this technique to measure in vivo oxyhemoglobin saturation continuously. Diode-emitted light travels down one filament, is emitted from the tip, reflects off the flowing red cells (hemoglobin absorbing some of the light), and re-enters the catheter to travel up the other optical fiber for analysis. A continuous reading of the percent saturation of hemoglobin in the arterial blood is thus provided. As the catheter contains a sampling/pressure monitoring lumen and the two optical fibers, it is larger (1.9 mm) than a standard arterial line. Thus a radial artery should not be used, but the brachial artery in adults of normal size and femoral artery are preferred cannulation sites. Because the catheter is blunt-tipped with an eccentric lumen, an "introducer" must be used which may initially produce some bleeding around the catheter. This indwelling arterial oximeter has been shown to be reliable and to provide error-free data

until infection considerations dictate line change.

A miniature O2 electrode may also be used invasively on the tip of an arterial line. A commercially available form of this catheter is the same size as the reflectance oximeter described above and requires the same introducer techniques and cautions. This catheter, like the oximeter arterial line. was designed with the intent of umbilical artery cannulization in newborns. Unfortunately, there has been very little experience with the O. electrode catheter in adults. The infusion, pressure monitoring, and sampling port of this catheter is on the side of the line which makes the catheter more prone to clotting than other arterial lines. Clot formation falsely lowers the PO2. Drops in PO2 need to be confirmed with a blood sample, and periodic sampling should be performed to insure continued accuracy. The catheter cost is about four times that of a fiberoptic arterial line, which is about twice the cost of a standard line. A smaller O2 electrode designed to be introduced via a standard 18 gauge catheter has recently been commercially introduced and this third device may eventually prove superior for application in adults.

Monitoring Circulatory and Tissue Phases of Respiration

In the second phase of respiration, circulation, the gases contained in the blood of the capillary beds of the lung and peripheral tissues are pumped from one to the other via the convec-

tion loop formed by the eardiovascular system. Monitoring of this phase of respiration is technically the least difficult and is commonplace in intensive care units through continuous recording of the EKG and arterial pressure and frequent evaluation of the cardiac output. Cardiovascular monitoring per se will not be addressed here except that a failure in this phase of respiration limits oxygen delivery to support tissue respiration. It is, in fact, irrelevant to the metabolizing cell how its oxygen is supplied or its carbon dioxide is carried away. Heart and lungs are simply a means to that end, just a step beyond spiricles and gills which serve other organisms.

The gas exchange of tissue respira tion takes place within the mitochon dria at the terminal portion of the electron transport chain at cytochrome oxidase a3. This is the only energy producing step in the body where molecular oxygen is the oxidizing agent. Researchers at Duke University have developed a non-invasive technique utilizing near infra-red laser light for continuously monitoring the oxidationreduction status of cytochrome oxidase a3, thus directly monitoring the adequacy of tissue respiration. Until this direct method is clinically available, we can utilize another technique to make reasonable inferences about the adequaey of tissue respiration by examining blood downstream from all the peripheral tissues. All such blood is finally mixed within the right ventricle and propelled as the "mixed venous" blood into the pulmonary artery where another fiberoptic sampling catheter can be placed.

Just as fiberoptic filaments may be molded into an arterial line for continuous measurement of arterial O_2 saturation, an identical system may be employed in a flow directed pulmonary artery catheter for measurement of mixed venous oxygen saturation ($S\bar{v}O_2$). Although $S\bar{v}O_2$ gives no information about possible regional problems of O. delivery or utilization, it provides a reasonable overall assessment

of the balance between O_2 supply and demand to the total body.

The use of SvO₂ is based upon the Fick equation for calculating cardiac output (CO)*:

oxygen consumption

CO arterio-venous oxygen content difference

-01

V(),

 $CO = CaO_2 - C\bar{v}O_2$

By ignoring the trivial amount of O_2 dissolved in plasma, the O_2 content of arterial and mixed venous blood can be considered to be the amount of O_2 associated with hemoglobin and the Fick equation thus modified to:

$$CO = VO$$
.

(SaO₂ SvO₃) x Hgb x 13.8 where 13.8 is the conversion constant for milliliters of O₂ per gram of Hgb as corrected to units per liter of blood. So SvO_3 α , SaO_4 = VO_3

With a few exceptions, a normal SvO, therefore should assure the clinician that the patient's oxygen delivery and all phases of respiration are adequate. The continuously monitored variable, SvO, will, however, fall from its normal value of above 60% if an adverse event occurs which causes:

- a drop in arterial O₂ saturation;
- a drop in cardiac output;
- a drop in hemoglobin;
- an increase in metabolic activity and oxygen consumption (e.g., fever, etc.)

To the extent that the heart is able to achieve an increase in its output to compensate for changes in the other variables, the effects of such changes upon $S\bar{\nu}O$ will be blunted. This "blunting" does not limit the usefulness of the method, however, since patients with

*CO cardiae output

CaO. - arterial oxygen content

CvO. = mixed venous oxygen content

VO. oxygen consumption

S_aO. saturation in percent of the Hgb in arterial blood by oxygen

SvO. - saturation in percent of the Hgb in mixed venous blood by oxygen.

large cardiac reserve usually do not require pulmonary artery catheters in the first place. Note that a drop in SvO₂ does not tell the clinician exactly what has gone amiss but should prompt an appropriately thorough evaluation of ventilation (ABG, pulmonary assessment, etc.), circulation (cardiac and hemodynamic assessment, hemoglobin, etc.), and tissue respiration (assessment of infection, muscular activity and other sources of hypermetabolism).

Conversely, certain pathologic conditions may elevate the $S\bar{\nu}O_2$ to above normal or offset reductions in $S\bar{\nu}O_2$ caused by the above factors. These conditions include:

- 1. Poisons of cellular respiration which reduce oxygen uptake/utilization of oxygen by the tissue, thus leaving the oxygen in the venous circulation causing the observed higher SvO₂ value. These include: Hydrogen Sulfide, Cyanide, Carbon Monoxide (carboxyhemoglobin is falsely measured as oxyhemoglobin as well as poisoning cellular respiration).
- 2. Conditions which pathologically lower metabolic rate such as hypothermia, hypothyroidism.
- 3. Septic shock (very early in sepsis $S\bar{v}O_2$ may be elevated due to reduced O_2 uptake or peripheral arteriovenous shunts. Later, as blood pressure and CO fall, $S\bar{v}O_2$ may drop to the normal range despite on-going lactic acidosis).
- 4. Large systemic arterial venous anatomic shunts.

The value of continuous mixed venous oxygen analysis is so high that insertion of a non-oximetry pulmonary artery catheter may rarely be appropriate.

Thus, there are two basic measurement tools, oximeters and O_2 electrodes, which may be utilized in a variety of invasive or non-invasive ways to continuously monitor the most critical aspect of respiration: oxygenation. Appropriate application of these tools can provide the physician with early warning of hypoxemia and hypoxia while decreasing the need for

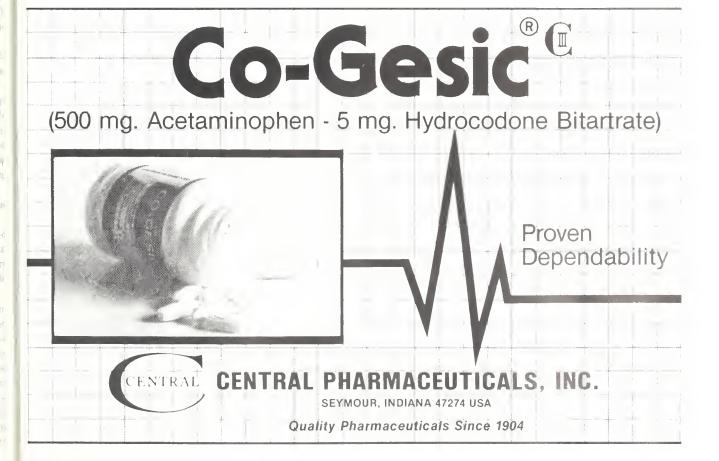
"routine" blood gas analysis. An increased level of care may then be provided without necessarily increasing overall cost.

ADDITIONAL READING

- Baele P: Continuous monitoring of mixed venous oxygen saturation in critically ill patients. Anesth Analy, 61(6):513-517, 1982.
- 2. Birman H: Continuous monitoring of mixed venous oxygen saturation in hemodynamically unstable patients. *Chest*, 86(5):753-756, 1984.
- 3. Conway M: Continuous monitoring of arterial oxygen tension using a

- catheter-tip polargraphic electrode in infants. *Pediatrics*, 57(2):244-250, 1976.
- Fahey P: Clinical experience with continuous monitoring of mixed venous oxygen saturation in respiratory failure. Chest, 86(5):748-752, 1984.
- Gore J: Use of continuous monitoring of mixed venous saturation in the coronary care unit. Chest, 86(5):757-761, 1984
- Jamieson W: Continuous monitoring of mixed venous oxygen saturation in cardiac surgery. Can J Surg, 25(5):538-543, 1982
- 7. Kandel G: Mixed venous oxygen saturation. Arch Intern Med, 143:1400·1402, 1983.

- Malalis L: Comparison of intravascular PO₂ with transcutaneous and PaO₂ values. Crit Care Med, 11(2):110-112, 1983.
- 9. Pollitzer M: Continuous monitoring of arterial oxygen tension in infants: Four years of experience with intravascular oxygen electrode. *Pediatrics*, 66(1):31-36, 1980.
- Schweiss J, Editor, Continuous measurement of blood oxygen saturation in the high risk patient. Beach International, San Diego, 1983.
- Waller JL: Clinical evaluation of a new fiberoptic catheter oximeter during cardiac surgery. Anesth Analy, 61(8):676-679, 1982.



Prophylactic Antibiotics in Surgery

LARRY MICON, M.D. WILLIAM SOBAT, M.D. MIKE ZECKEL, M.D. Indianapolis

Principles of Antibiotic Prophylaxis

Prophylactic antibiotics are indicated for operations with a high risk of infection or excessive morbidity should infection occur. Antibiotic administration should begin shortly before operation except for oral antibiotics for colon surgery, which are begun the day before. Supplemental intraoperative doses should be given in prolonged procedures. Antibiotic prophylaxis need not be continued beyond 12 hours after operation in most cases.² Extending prophylaxis with oral antibiotics is unnecessary. The particular antibiotic selected for prophylaxis should have been proven effective in clinical trials. In the case of dirty wounds, antibiotics administered are considered therapeutic and duration is determined by the clinical situation.

Appropriate use of prophylactic agents requires knowledge of the infection risk and the bacterial species encountered in the anticipated procedure. The agent should be inexpensive, have minimal toxicity and favorable pharmacokinetics. An example of the contribution pharmocokinetics can play is the failure of cephalothin as a prophylactic agent. A study of the wound concentration of first generation cephalosporins revealed that cephalothin failed to maintain adequate wound levels for antimicrobial activity. Optimal

From the Depts, of Surgery and Infectious Diseases, Methodist Hospital of Indiana, Inc., 1604 N. Capitol Ave., Indianapolis, Ind. 46202.

results thus depend upon utilization of an antibiotic with activity against the likely pathogens with favorable pharmacologic properties. A consideration of likely pathogens and appropriate antimicrobials for gastrointestinal surgery is forthcoming.

Gastroduodenal Surgery

In normal individuals the gastric lining is sterile. However, pathologic states allow overgrowth of bacteria. Viable bacterial counts rise proportionately with rising pH.5 The flora encountered consists predominantly of mouth anaerobes, enterococci and coliforms, with the latter two most commonly isolated from subsequent infections. Occasionally, Bacteroides can be isolated as well. Disease states associated with hypochlorhydria and bacterial overgrowth are gastric car cinoma, gastric ulceration, bleeding gastic or duodenal ulcer, obstructing duodenal ulcer and patients taking histamine, blockers (cimetidine or ranitidine) or antacids. These patients, therefore, are at risk for developing wound infections and deserve antibiotic prophylaxis. In addition, those patients on histamine₂ blockers should have these medications withdrawn 24 hours before surgery and these should not be given by anesthesiologists for gastroduodenal surgery. Obese individuals undergoing gastric procedures are also at increased risk of infection and so should receive prophy-

Both first and second generation cephalosporins have been effective for gastroduodenal prophylaxis.^{1,6} Since most of the commonly isolated pathogens should be sensitive to first generation cephalosporins, this group and cefazolin in particular has been recommended.^{7,8} Cefamandole (second generation) was no more effective than ceph

aloridine (first generation) in a comparative study.²

Biliary Surgery

The incidence of infectious complications following biliary surgery has been correlated with the status of the bile at surgery.9 Positive bile cultures were found in one-third of patients undergoing biliary operations and these patients suffered a 40-fold greater septic complication rate than those with negative bile cultures. Further investigation of the positive bile cultures shows a direct relationship to the age of the patient such that 72% of patients over 70 years old have positive cultures. In addition, acute cholecystitis, obstructive jaundice and choledocholithiasis without jaundice all had high incidences of positive bile cultures. In contrast, the incidence of positive bile culture in patients with chronic cholecystitis (including negative common duct explorations) was only 10%. The organisms most frequently cultured were E coli, klebsiella and enterococci. No Bacteroides species were isolated.

From this information we may conclude that patients at increased risk for infection undergoing biliary surgery can be identified preoperatively. Prophylactic cephaloridine was studied in these patients and although the incidence of positive bile cultures was not reduced, the antibiotic group suffered significantly fewer infectious complications (4%) than controls (27%).¹⁰

The significance of antibiotic concentration in the bile has been investigated. A broad spectrum antibiotic with near complete bile excretion (Rifamide) was compared to a second agent with minimal bile excretion (gentamicin) for biliary prophylaxis. The organisms cultured from the bile at surgery were sensitive to both anti

bioties in greater than 80% of cases with no significant difference between the agents. Gentamicin demonstrated a significant decrease in wound infection and bacteremia when compared to controls, while Rifamide did not. Thus, adequate serum levels of antibiotic are more important than bile levels in biliary prophylaxis. Therefore, cefazolin has been recommended for prophylaxis in high risk patients.7,8 Cephaloridine, eefazolin, cephalothin, cefamandole, trimethoprim-sulfa and gentamicin have all significantly decreased infectious complications compared to controls.7 Cefamandole was no more effective than cephaloridine in a comparative study.2

Colon Surgery

Infection occurs more commonly following colon surgery than after other abdominal operations. As a result, prophylactic antibiotics have been studied extensively for colorectal procedures. In addition, mechanical preparation of the large bowel has been employed to remove the fecal bulk and. hopefully, decrease bacterial contamination at surgery. Catharties, enemas, whole gut lavage and mannitol have all been used effectively. Nichols demonstrated the normal colon flora consists primarily of Bacteroides, coliforms and streptococci, but is minimally altered by a mechanical prep alone.12 The addition of neomycin, however, significantly decreased the aerobic flora while a combination of neomycin and erythromycin effectively decreased aerobic and anaerobic isolates. The clinical efficacy of the neomycin and erythromycin combination was later demonstrated in a prospective trial.13 The group receiving oral antibiotics experienced a septic complication rate attributable to the colon procedure of 9% compared to 43% in the placebo group.

Other oral antibiotic regimens have demonstrated utility in colorectal prophylaxis. Flagyl alone or in combination with neomycin or kanamycin has been effective. Tetracycline has also demonstrated efficacy in colorection.

TABLE 1 Summary of Recommendations		
Type of Operation	Patients	Recommended Antibiotic Regimen
1. Gastroduodenal	High risk only	Cefazolin 1 gm IV preop and q8h postop ≤ 24 hrs.
2. Biliary	High risk only	Cefazolin 1 gm IV preop and q8h postop ≤ 24 hrs.
3. Colorectal	All	Elective: 1gm neomycin, 1gm erythro mycin PO at 1PM, 2PM, 11PM the day before surgery.
		Emergency or total obstruction: amino glycoside—and—clindamycin—or metronidazole IV, preop, continue ≤ 24 hrs. postop
4. Appendectomy	All	Cefoxitin 1gm IV preop and postop ≤ 24 hrs. Therapeutic course if appendix ruptured at surgery.

tal prophylaxis but emergence of resistent Bacteroides strains has been reported.^{13,14}

Parenteral antibiotics as single agents and in combinations have been studied for prophylaxis in large bowel surgery. Cefazolin, cefoxitin, 15,16 metronidazole alone¹⁷ and in combination with gentamicin have been effective. Lincomycin alone has significantly reduced infectious complications as well, but it is associated with a high incidence of pseudomembraneous colitis. When cefoxitin was compared to oral neomycin, erythromycin and parenteral cefazolin, it proved less effective in preventing infections.16 Gentamicin and metronidazole in combination was significantly better than gentamicin alone in another study.11

Several studies have compared oral to parenteral regimens. From these collectively it appears that effective prophylaxis can be attained by either, provided appropriate agents are included. A VA cooperative study compared oral neomycin, erythromycin to parenteral cephalothin to a combination of the two. The cephalothin arm was dropped early due to the development of significantly more infectious complications. A comparison of the remaining two groups revealed no benefit of adding parenteral cephalo-

thin to the oral antibiotic regimen. Similarly, parenteral cefamandole or a clindamycin-gentamicin regimen offered no additional benefit to the oral neomycin-erythromycin prep.¹⁹

With the data presently available, a mechanical prep and oral neomycin and erythromycin prophylaxis is recommended for all elective colorectal operations. 7.8 Substitution of kanamycin or metronidazole can be expected to yield similar results. Additional benefit of parenteral antibiotics with this regimen has not been demonstrated.

When mechanical preparation and oral antibiotic administration is impossible due to obstruction or emergency operation, parenteral prophylaxis with an aminoglycoside and either elindamycin or metronidazole is recommended. The Cefoxitin as a single agent may be effective in this setting.

Appendectomy

Preoperative use of antibiotics for appendicitis has been controversial. Those patients found at laparotomy to have a ruptured appendix with peritonitis are classified as dirty cases and deserve therapeutic administration of antibiotics. Preoperative antibiotic administration in patients found to have acute nonperforating appendicitis has also been examined. Wound

infection rates up to 30% have been reported following appendectomy for nonruptured appendices and therefore potential benefits from prophylaxis are plausible. The organisms most commonly cultured from inflamed appendices and subsequent wound infections are aerobic gram-negative rods and Bacteroides, Cefoxitin administered in three perioperative doses significantly reduced wound infections (from 9.6% to 0%).20 Clindamycin alone was also beneficial²¹ but more effective when combined with gentamicin.22 Parenteral metronidazole was only minimally effective for inflamed appendices in one study⁷ but reduced postop wound infections from 10% to 0% when given as a single preoperative suppository.23 Some concern over a carcinogenic potential of metronidazole has been expressed, however.7

Most reports which limit the study group to non-perforating appendicitis demonstrate salutory effects of prophylactic antibiotics. Anaerobic coverage in particular seems important. Therefore, preoperative administration of cefoxitin has been recommended⁸ and further antibiotic administration should be dictated by the operative findings.

Topical Antibiotics

To this point topical antibiotics have not been addressed. These have been utilized as powders applied to incisions and as irrigants in wounds and body cavities. Both forms have reduced wound infections after various surgical procedures.24 Studies have compared parenteral administration to topical application of prophylactic antibiotics. 25,26 In these studies topical antibiotics appear similar in efficacy to parenteral administration but offer no additional benefit in combination. Further clarification of this issue is needed. At present topical antibiotics rather than the intravenous or intramuseular route cannot be recommended.

New Agents

One additional issue is the role of newer antibiotics, especially cephalo-

sporins. At present, clinical trials of these agents demonstrating superiority over older antibiotics are lacking. In general, newer cephalosporins have less antistaphylococcal activity than first generation drugs. Also, the Bacteroides coverage is no better than cefoxitin when this organism is a consideration. Collectively, the newer agents cost more per dose and have little pharmacokinetic advantage over cefazolin. Single dose prophylaxis is enticing; however, it is possible that eefazolin may be effective as a single dose. The indiscriminate use of these antibiotics is likely to encourage bacterial resistance to them. For these reasons, new agents presently have no place in surgical prophylaxis and should be reserved for serious infections in compromised patients.

In conclusion, the appropriate use of antibiotic prophylaxis can reduce the incidence of surgical wound infections. A review of this subject has been presented. The recommendations based on this review are summarized in *Table 1*.

REFERENCES

- Stone HH, ct al: Antibiotic prophylaxis in gastric, biliary and colonic surgery. Ann Surg, 184:443-50, 1976.
- Stone HH, et al: Prophylactic and preventive antibiotic therapy. Ann Surg, 189:691-99, 1977.
- 3. Condon RE, *et al*: Preoperative prophylactic cephalothin fails to control septic complications of colorectal operations. *Am J Surg*, 137:68-74, 1979.
- Polk HC, Trachtenberg L, Finn M: Antibiotic activity in surgical incisions. JAMA, 244:1353-54, 1980.
- Keighly MRB: Microflora and postoperative infection in gastroesophageal surgery. *Inf. in Surg.*, 564-70, August 1983.
- Nichols RL, Webb WR, Jones JW, Smith JW, LaCicero J: Efficacy of antibiotic prophylaxis in high risk gastro duodenal operations. Am J Surg, 143:947, 1982.
- 7. Dipiro JT, Bivins BA, Record KE, Bell RM, Griffen WO: The prophylactic use of antimicrobials in surgery. Curr Probl Surg, 76 118, February 1983.
- 8. The Medical Letter on Drugs and Therapeutics. Antimicrobial Prophylaxis for Surgery, 25:113-16, 1983.
- Chetlin SH, Elliott DW: Biliary bacteremia. Arch Surg, 102:303-7, 1971.
 Chetlin SH, Elliott DW: Preoperative

- antibiotics in biliary surgery. Arch Surg, 107:319-22, 1973.
- Keighly MRB, Drysdale RB, Quoraishi AH, Burdon DW, Alexander Williams J: Antibioties in biliary disease: The relative importance of antibiotic concentrations in serum and bile. Gul, 17:495-500, 1976.
- Nichols RL, Condon RE, Gorbach SL, Nyhus LM: Efficacy of preoperative antimicrobial preparation of the bowel. Ann Surg, 176:227-32, 1972.
- Clarke JS, Condon RE, et al: Preoperative oral antibiotics reduce septic complications of colon operations. Ann Surg, 186:251-58, 1977.
- Feathers RS, Lewis AA, Sagor GR, Admirak ID, Noone P: Prophylactic systemic antibiotics in colorectal surgery. The Lancet, 2:4-8, 1977.
- Hoffman CE, McDonald PJ, Watts JM: Use of preoperative cefoxitin to prevent infection after colonic and rectal surgery. Ann Surg, 193:353-6, 1981.
- Kaiser AB, et al: Cefoxitin versus erythromycin, neomycin and cefuzolin in colorectal operations. Ann Surg, 198:525-30, 1983.
- 17. Dion YM, Richards GK, Prentis JJ, Hinchey EJ: The influence of oral versus parenteral preoperative metronidazole on sepsis following colon surgery. Ann Sura, 192:221-6, 1980.
- 18. Condon RE, et al: Efficacy of oral and systematic antibiotic prophylaxis in colorectal operations. Arch Surg, 118.496-50, 1983.
- Mehigan D, Zuidema GD, Cameron JL: The role of antibiotics in operations upon the colon. Surg Gynecol Obstet, 153:573 6, 1981.
- Winslow RE, Dean RE, Harley JW: Acute nonperforating appendicitis. Arch Surg., 118:651-5, 1983.
- 21. Donovan IA, et al: One-dose antibiotic prophylaxis against wound infection after appendectomy. Br J Surg, 66:193-6, 1979.
- 22. Rowlands BJ, Clark RG, Richards DG: Single dose intraoperative antibiotic prophylaxis in emergency abdominal surgery. Arch Surg, 117:195-99, 1982.
- 23. Kortelainen P, ct al: Single dose intrarectal metronidazole prophylaxis against wound infection after appendectomy. Am. J. Surg., 143:244-45,
- 24. Halasz NA: Wound infection and topical antibiotics. Arch Surg, 112:1240-4, 1977.
- 25. Pitt HA, Postier RG, Gadaez TR, Cameron JL: The role of topical antibiotics in high risk biliary surgery. Surgery, 91:518-24, 1982.
- Pitt HA, et al: Prophylactic antibiotics in vascular surgery. Ann Surg, 192:356-63, 1980.

Wrong Size?





Knowing exactly what size you need can sometimes be a problem — especially if you're talking about medical office computers. Too often, medical practices end up with a computer that is either too small or too big for their needs. If your decision is based only on price and you buy too small, you soon find that you've outgrown your "new" system, and now need a different one. If you buy too big, you may find that you've spent more than you should have, wasting thousands of dollars. So, where do you turn?

Now, you can get help from the *Professional Medical Consultants* at Advanced Information Systems. At Advanced Information Systems, our only business is working with medical practices that are considering automation. We offer a free Physician Practice Profile to evaluate your office needs. If you don't need a computer system, we'll tell you. But if you do, we have a complete line of medical systems tailored specifically for your practice — regardless of size or speciality. From accounting applications and word processing to an exclusive Medical Records System, Advanced Information Systems creates a Total Practice Management environment for you.

Just because there may be a designer label on a computer does not necessarily mean it will fit you. Get the right computer system for your practice. Call or write today for more information. Advanced Information Systems. We can help.

Please send more information about how Advanced

NAME	
ADDRESS	
CITY	STATE
ZIP	PHONE
	/



ADVANCED INFORMATION SYSTEMS

Understanding your medical practice

9101 Wesleyan Road • Suite 101 • Indianapolis, Indiana 46268 • (317) 875-857

FOR MEDICAL PROFESSIONAL LIABILITY COVERAGE, THE ISMA STRONGLY RECOMMENDS PHYSICIANS INSURANCE COMPANY OF INDIANA. Several companies are

anxious to provide most Indiana physicians with medical professional liability insurance coverage. *Only one* has received the formal endorsement, support, and sponsorship of the Indiana State Medical Association. That company is PICI, Physicians Insurance Company of Indiana.

Why PICP.

Because PICI is committed to providing Indiana physicians with the best possible coverage at the lowest possible rates throughout their medical careers. Indiana physicians dominate the company's board of directors and serve on budget, claims and underwriting committees. PICI is a publicly held stock company, and provides annual as well as periodic interim financial reports.

With PICI, you know what's happening to your premium dollars. You will receive information about claims experience and trends. You are guaranteed input on company activities, through your physician members of the company's board and its committees. You are part of the company.

Through PICI, you also receive competitively priced auto, homeowners, office protection and personal umbrella coverages, designed and offered with the same long term commitment.

Compare all that PICI offers with what you will obtain from other sources of medical professional liability and other essential insurance coverages. We think you'll agree that the ISMA has endorsed the best.

The Accountable Company . . .



3901 West 86th Street Suite 350 P.O. Box 689059 Indianapolis, Indiana 16268 (317) 872–3046 or toll free in Indiana (800) 732–1313

BALANCED CALCIUM CHANNEL BLOCKADE!



Low incidence of side effects

CARDIZEM® (diltiazem HCl) produces an incidence of adverse reactions not greater than that reported with placebo therapy, thus contributing to the patient's sense of well-being.

Cardizem is indicated in the treatment of angina pectoris due to coronary artery spasm and in the management of chronic stable angina (classic effort-associated angina) in patients who cannot tolerate therapy with beta-blockers and/or nitrates or who remain symptomatic despite adequate doses of these agents.

References

- Strauss WE, McIntyre KM, Parisi AF, et al: Safety and efficacy
 of diltiazem hydrochloride for the treatment of stable angina
 pectoris: Report of a cooperative clinical trial. Am J Cardiol
 49:560-566, 1982.
- Pool PE, Seagren SC, Bonanno JA, et al: The treatment of exerciseinducible chronic stable angina with diltiazem: Effect on treadmill exercise. Chest 78 (July suppl):234-238, 1980.

Reduces angina attack frequency*

42% to 46% decrease reported in multicenter study.

Increases exercise tolerance*

In Bruce exercise test, control patients averaged 8.0 minutes to onset of pain; Cardizem patients averaged 9.8 minutes (P < .005).

CARDIZEM

(diltiazem HCl)

THE BALANCED
CALCIUM CHANNEL BLOCKER

PROFESSIONAL USE INFORMATION



DESCRIPTION

CARDIZEM" (diltiazem hydrochloride) is a calcium ion influx Inhibitor (slow channel blocker or calcium antagonist). Chemically, diltiazem hydrochioride is 1,5-Benzothiazepin-4,5Hjone, 3-(acetyloxy) 5-[2-(dimethylaminojethyl]-2,3-dihydro-2-(4-methoxyphenyl)-. monohydrochloride (+) -cis The chemical structure is

Diltiazem hydrochloride is a white to off-white crystalline powder with a bitter taste It is soluble in water, methanol, and chloroform It has a molecular weight of 450.98 Each tablet of CARDIZEM intains either 30 mg or 60 mg diltiazem hydrochloride for oral administration

CLINICAL PHARMACOLOGY

The therapeutic benefits achieved with CAROIZEM are believed to be related to its ability to inhibit the influx of calcium ions during membrane depolarization of cardiac and vascular smooth

Mechanisms of Action. Although precise mechanisms of its

antianginal actions are still being delineated, CAROIZEM is believed to act in the following ways

1. Angina Due to Coronary Artery Spasm. CAROIZEM has been shown to be a potent dilator of coronary arteries both epicardial

snown to be a potent mater or coronally arteries both epicardial and subendocardial. Spontaneous and ergonovine-induced conany artery spasm are inhibited by CARDIZEM.

Exertional Angina CARDIZEM has been shown to produce increases in exercise tolerance, probably due to its ability to reduce myocardial oxygen demand. This is accomplished via reductions in heart rate and systemic blood pressure at submaximal and maximal exercise work loads.

In animal models, dilitazem interferes with the slow inward epolarizani current in exclude tissue. It causes excitation-contraction.

(depolarizing) current in excitable tissue. It causes excitation-contraction uncoupling in various myocardial tissues without changes in the configuration of the action potential. Dilitazem produces relaxation of coronary vascular smooth muscle and dilation of both large and small coronary arteries at drug levels which cause little or no negative inotropic effect. The resultant increases in coronary blood flow (epicardial and subendocardial) occur in ischemic and nonischemic models and are accompanied by dose-dependent decreases in systemic blood pressure and decreases in peripheral resistance

Hemodynamic and Electrophysiologic Effects. Like other calcium aniagonists, diltiazem decreases sinoatrial and atrioventricu-lar conduction in isolated tissues and has a negative inotropic effect in isolated preparations. In the intact animal, prolongation of the AH interval can be seen at higher doses.

In man, dilitazem prevents spontaneous and ergonovine-provoked coronary artery spasm. It causes a decrease in peripheral vascular resistance and a modest fall in blood pressure and, in exercise tolerance studies in patients with ischemic heart disease, reduces the heart rate-blood pressure product for any given work load Studies to date, primarily in patients with good ventricular function have not revealed evidence of a negative inotropic effect, cardiac output, ejection fraction, and left ventricular end diastolic pressure have not been affected. There are as yet few data on the interaction of dilitazem and beta-blockers. Resting heart rate is usually unchanged

or slightly reduced by diltiazem Intravenous diltiazem in doses of 20 mg prolongs AH conduction time and AV node functional and effective refractory periods approximately 20%. In a study involving single oral doses of 300 mg of CARDIZEM in six normal volunteers, the average maximum PR prolongation was 14% with no instances of greater than first-degree AV block Diltrazem-associated prolongation of the AH interval is not more pronounced in patients with first-degree heart block. In patients

more pronounced in patients with first-degree heart block. In patients with sick sinus syndrome dilitiazem significantly prolongs sinus cycle length lup to 50% in some cases). Chronic oral administration of CARDIZEM in doses of up to 240 mg/day has resulted in small increases in PR interval, but has not usually produced abnormal prolongation. There were, however, three instances of second-degree AV block and one instance of third-degree AV block in a group of 959 chronically treated patients. Pharmacokinetics and Metabolism. Dilitizem is absorbed from the tablet formulation to ahout 80% of a reference capsule and is subject to an extensive first-pass effect, giving an absolute floavailability compared to intravenous dosinol of about 40%. CARDIZEM

altered by therapeutic concentrations of digoxin, hydrochlorothlazide, phenylhutazone, propranolol, salicytic acid, or warfarin. Single oral doses of 30 to 120 mg of CAROIZEM result in detectable plasma levels within 30 to 60 minutes and peak plasma levels two to three hours after drug administration. The plasma elimination half-life following single or multiple drug administration is approximately 3.5 hours. Desacetyl dilitazem is also present in the plasma at levels of 10% to 20% of the parent drug and is 25% to 50% as potent a coronary vasodilator as dilitazem. Therapeutic blood levels of CARDIZEM appear to be in the range of 50 to 200 ng/ml. There is a departure from diose-lineatily whom single doses above 60 mg are departure. departure from dose-linearity when single doses above 60 mg are given, a 120-mg dose gave blood levels three times that of the 60-mg dose. There is no information about the effect of renal or hepatic impairment on excretion or metabolism of diltiazem

INDICATIONS AND USAGE

Angina Pectoris Due to Coronary Artery Spasm. CAROIZEM

is indicated in the treatment of angina pectoris due to coronary artery spasm. CAROIZEM has been shown effective in the treatment of spontaneous coronary artery spasm presenting as Prinzmetal's variant angina (resting angina with ST-segment.)

elevation occurring during attacks)
Chronic Stable Angina (Classic Effort-Associated Angina) CARDIZEM is indicated in the management of chronic stable angina. CARDIZEM has been effective in controlled trials in

reducing angina frequency and increasing exercise tolerance. There are no controlled studies of the effectiveness of the concomi tant use of diltiazem and beta-blockers or of the safety of this combination in patients with impaired ventricular function or conduction abnormalities

CONTRAINDICATIONS

CARDIZEM is contraindicated in (1) patients with sick sinus syndrome except in the presence of a functioning ventricular pacemaker, (2) patients with second- or third-degree AV block except in the presence of a functioning ventricular pacemaker, and (3) patients with hypotension (less than 90 mm Hg systolic)

WARNINGS

1 Cardiac Conduction. CARDIZEM prolongs AV node refractory periods without significantly prolonging sinus node recov-ery time, except in patients with sick sinus syndrome. This effect may rarely result in abnormally slow heart rates (particularly in patients with sick sinus syndrome) or second- or third-degree AV block (six of 1243 patients for 0.48%). Concomitant use of diltazem with beta-blockers or digitalis may result in additive effects on cardiac conduction. A patient with Prinzmetal's angina developed periods of asystole (2 to 5 seconds) after a

single dose of 60 mg of diltiazem

Congestive Heart Failure. Although diltiazem has a negative inotropic effect in isolated animal tissue preparations, hemodynamic studies in humans with normal ventricular function have not shown a reduction in cardiac index nor consistent negative effects on contractility (dp/dt). Experience with the use of CAROIZEM alone or in combination with beta-blockers in patients with impaired ventricular function is very limited. Caution should

be exercised when using the drug in such patients **Hypotension.** Decreases in blood pressure associated with CARDIZEM therapy may occasionally result in symptomatic hypotension

Acute Hepatic Injury. In rare instances, patients receiving CARDIZEM have exhibited reversible acute hepatic injury as evidenced by moderate to extreme elevations of liver enzymes (See PRECAUTIONS and AOVERSE REACTIONS)

PRECAUTIONS

General. CARDIZEM (diltiazem hydrochloride) is extensively metabolized by the liver and excreted by the kidneys and in bile. As with any new drug given over prolonged periods, laboratory parameters should be monitored at regular intervals. The drug should be used with caution in patients, with impaired renal or hepatic function. In subacute and chronic dog and rat studies designed to produce toxicity, high doses of diltiazem were associated with hepatic damage. In special subacute hepatic studies, oral doses of 125 mg/kg and higher in rats were associated with histological changes in the liver which were reversible when the drug was discontinued. In dogs doses of 20 mg/kg were also associated with hepatic changes

however, these changes were reversible with continued dosing

Orug Interaction. Pharmacologic studies indicate that there
may be additive effects in prolonging AV conduction when using
beta blockers or digitalis concomitantly with CAROIZEM (See

Controlled and uncontrolled domestic studies suggest that con-comitant use of CARDIZEM and beta-blockers or digitalis is usually well tolerated. Available data are not sufficient, however, to predict the effects of concomitant treatment, particularly in patients with left ventricular dysfunction or cardiac conduction abnormalities. In healthy volunteers, dilltrazem has been shown to increase serum digoxin levels up to 20%

Carcinogenesis, Mutagenesis, impairment of Fertility. A 24-month study in rats and a 21-month study in mice showed no evidence of carcinogenicity There was also no mutagenic response in in vitro bacterial tests. No in

Pregnancy. Category C Reproduction studies have been conregiming, category compositions studies have been con-ducted in mice rats, and rabbits Administration of doses ranging from five to ten times greater (on a mg/kg basis) than the daily recommended therapeuric dose has resulted in embryo and tetal lethality. These doses, in some studies, have been reported to cause skeletal abnormalities. In the perinatal/postnatal studies, there was ome reduction in early individual pup weights and survival rates There was an increased incidence of stillbirths at doses of 20 times the human dose or greater

There are no well-controlled studies in pregnant women, therefore use CAROIZEM in pregnant women only it the potential benefit justifies the potential risk to the fetus

Nursing Mothers. It is not known whether this drug is excreted in human milk. Because many drugs are excreted in human milk, exercise caution when CARDIZEM is administered to a nursing woman if the drug's benefits are thought to outweigh its potential risks in this situation

Pediatric Use. Safety and effectiveness in children have not

ADVERSE REACTIONS

Serious adverse reactions have been rare in studies carried out to date, but it should be recognized that patients with impaired ventricular function and cardiac conduction abnormalities have usually been

In domestic placebo-controlled trials, the incidence of adverse reactions reported during CARDIZEM therapy was not greater than that reported during placebo therapy

The following represent occurrences observed in clinical studies which can be at least reasonably associated with the pharmacology of calcium influx inhibition. In many cases, the relationship to CARDIZEM has not been established. The most common occurrences, as well as their frequency of presentation, are edema (2.4%)

headache (2.1%), nausea (1.9%), dizziness (1.5%), rash asthenia (1.2%). AV block (1.1%) In addition, the following were reported infreguently (less than 1%) with the order of pre tion corresponding to the relative frequency of occurrence

Flushing, arrhythmia, hypotension, bradia, palpitations, congestive heart f Cardiovascular

syncope Nervous System

Gastrointestinal

Bradycardia

Paresthesia, nervousness, somno tremor, insomnia, hallucinations, and am Constipation, dyspepsia, diarrhea, voi mild elevations of alkaline phosphatase. SGPT, and LOH

Dermatologic Pruritus, petechiae, urticaria, photoseni Polyuria, nocturia

The following additional experiences have been noted A patient with Prinzmetal's angina experiencing episor vasospastic angina developed periods of transient asympt asystole approximately five hours after receiving a single dose of CAROIZEM

The following postmarketing events have been reported quently in patients receiving CARDIZEM erythema multiform kopenia, and extreme elevations of alkaline phosphatase, SGPT, LDH, and CPK. However, a definitive cause and effect by these events and CARDIZEM therapy is yet to be establishe

OVERDOSAGE OR EXAGGERATED RESPONSE

Overdosage experience with oral dilitiazem has been I Single oral doses of 300 mg of CARDIZEM have been well to by healthy volunteers. In the event of overdosage or exago response, appropriate supportive measures should be emploaddition to gastric lavage. The following measures may be cons Administer atropine (0.60 to 1.0 mg). I

is no response to vagal blockade, admisoproterenol cautiously High-Degree AV Treat as for bradycardia above Fixed degree AV block should be treated wi

Block diac pacing Administer inotropic agents (isoprote dopamine, or dobutamine) and diuretics Cardiac Failure

Hypotension Vasopressors (eq. dopamine or levart bitartrate) Actual treatment and dosage should depend on the severity clinical situation and the judgment and experience of the tr

physician The oral/L0₅₀'s in mice and rats range from 415 to 740 and from 560 to 810 mg/kg, respectively The intravenous LC these species were 60 and 38 mg/kg, respectively The oral I dogs is considered to be in excess of 50 mg/kg, while lethali seen in monkeys at 360 mg/kg. The toxic dose in man is not i but blood levels in excess of 800 ng/ml have not been asso with toxicity

DOSAGE AND ADMINISTRATION

Exertional Angina Pectoris Due to Atheroscierotic nary Artery Disease or Angina Pectoris at Rest Due to nary Artery Spasm. Dosage must be adjusted to each pa needs Starting with 30 mg four times daily, before meals bedtime, dosage should be increased gradually (given in t doses three or four times daily) at one- to two-day interval optimum response is obtained. Although individual patient respond to any dosage level, the average optimum dosage appears to be 180 to 240 mg/day There are no available data or ing dosage requirements in patients with impaired renal or f function if the drug must be used in such patients, titration sho carried out with particular caution.

Concomitant Use With Other Antianginal Agents:

 Sublingual NTG may be taken as required to abort anginal attacks during CARDIZEM therapy
 Prophylactic Nitrate Therapy — CARDIZEM may be coadministered with short- and long-acting nitrates, bu have been no controlled studies to evaluate the antial effectiveness of this combination

3 Beta-blockers. (See WARNINGS and PRECAUTIONS)

HOW SUPPLIED

Cardizem 30-mg tablets are supplied in bottles of 100 0088-1771-47) and in Unit Dose Identification Paks of 10C 0088-1771-49) Each green tablet is engraved with MARION side and 1771 engraved on the other CARDIZEM 60-mg tablets are supplied in bottles of 100 (NDC 0088-1772-47) and Dose Identification Paks of 100 (NDC 0088-1772-49). Each tablet is engraved with MARION on one side and 1772 on the Issued 4

Another patient benefit product from



Clinico-Pathologic Conference: 44-Year-Old Man with Rectal Bleeding

Edited by DOUG REX, M.D. Indianapolis

44-YEAROLD MAN was admitted to University Hospital for evaluation of rectal bleeding. He stated that in mid-afternoon on the day of admission he developed nausea and then passed two large stools consisting of only bright red blood. He denied abdominal pain, rectal pain, passing mucus or pus per rectum, vomiting, chills, or fever.

Twenty years earlier hemorrhoids were noted and since then he intermit-

Dr. Rex is Chief Resident in Medicine, Indiana University Hospital W-587, 926 W. Michigan St., Indianapolis, Ind. 46223.

This is an edited transcript of the clinicopathologic conference conducted Nov. 14, 1984 during a Grand Rounds session of the Dept. of Medicine, Indiana University School of Medicine.

Discussants:

Glen Lehman, M.D., Dept. of Medicine; Henry Wellman, M.D., Dept. of Nuclear Medicine:

John Lappas, M.D., Dept. of Radiology; Kathy Warfel, M.D., Dept. of Pathology.

Dr. Lehman is Associate Professor of Medicine at the Indiana University Medical Center and is Director of Clinical Affairs in the Division of Gastroenterology. He is an outstanding endoscopist and clinician and has trained many of Indiana's gastroenterologists. His contributions in clinical research include development of improved techniques for accessory papilla cannulation in pancreas divisum, the use of mucosal clips as radiographic markers, and most recently treatment of gastroesophageal reflux by submucosal injection of collagen into the lower esophageal sphincter.

tently noted blood on the paper after bowel movements. Four months prior to admission he saw a physician with a complaint of left sided abdominal pain associated with diarrhea. Routine lab work was performed and was normal. A diagnosis of gastroenteritis was made and he was treated with antacids and antidiarrheal agents with improvement in his symptoms. There was no prior history of peptic ulcer disease, liver disease, melena, anemia, or massive rectal bleeding. His only medication was two aspirin per day for chronic back pain. He rarely drank alcohol.

Examination revealed a supine blood pressure of 142/90 mm Hg and heart rate of 104. In the sitting position the blood pressure was 120/40 mm Hg and the heart rate 126. Respirations were 16 and the temperature 37°C. There was a Grade II systolic ejection murmur at the lower left sternal border. The chest was clear. Abdominal examination revealed normal pitched bowel sounds and the abdomen was soft and non-tender. The spleen was not palpable and the liver measured 10 cm in the right mid-clavicular line. There were no palpable abdominal masses. Rectal examination revealed multiple skin tags. There were no palpable rectal masses. A nasogastric tube was placed and the aspirate was clear of blood.

Laboratory examination revealed the hemoglobin was 15.7 gm/100 ml, the hematocrit 46%, the white blood count 15,000 with 2% band forms, 76% polymorphonuclear leukocytes, 15% lymphocytes and 7% mononuclear cells. The platelet count was 402,000. The prothrombin time was 11.6 seconds with control of 12 seconds. The partial thromboplastin time was 27.5 seconds

with control of 28 seconds. The bilirubin was .6 mg/100 ml. The serum glutamic oxaloacetic transaminase was 28 IU/liter (nl 25-45), the alkaline phosphatase 106 IU/liter (nl 25-125), the amylase 37 IU/liter (nl 5-81), the total serum protein 6.8 gm/100 ml, the albumin 4.4 gm/100 ml and the calcium 9.6 mg/100 ml. The chest x-ray was normal and electrocardiogram revealed sinus tachycardia.

Fiberoptic sigmoidoscopy to 60 cm. revealed only large amounts of blood in the left colon. A technetium red blood cell gastrointestinal bleeding scan demonstrated a focus of radioactivity in the right lower quadrant. It was interpreted as bleeding from distal ileum or cecum and suspicion of a Meckel's diverticulum was raised. Two units of packed red blood cells were administered and his bleeding subsequently stopped spontaneously.

On the morning of the third hospital day upper gastrointestinal endoscopy revealed erythema of the gastric antrum and mild nodularity and patchy erythema of the duodenal bulb consistent with mild duodenitis. That evening he suddenly became confused and was found to have a blood pressure of 50/30 mm Hg and his hemoglobin had fallen from 11.6 to 8.7 gm/100 ml. He was transfused with three units of packed red blood cells, and emergency superior mesenteric and inferior mesenteric arteriography failed to identify a bleeding site. The bleeding again ceased spontaneously. The next day colonoscopy was performed to the ceeum. A small "red spot" was noted at the splenic flexure and was removed with hot biopsy forceps but no other lesions were noted. The specimen was later interpreted as "no pathologic change." The terminal ileum was not

entered. On the afternoon of the fourth hospital day a repeat arteriogram utilizing tolazoline was electively performed. Injection of the celiac arterial system was normal. Subselective injection of the superior mesenteric arterial system revealed normal vessels in the regions of the hepatic and splenic flexures. Injection of the terminal ileo-colic arcade revealed a cluster of small tortuous vessels with late phase blushing just superior and to the right of the bladder. The arteriogram was interpreted as suggestive of a Meckel's diverticulum or a neoplastic lesion such as a leiomyoma. A technetium radionuclide scan for Meckel's diverticulum was negative. The patient continued to have stools containing bright red blood and a decrease in hemoglobin required two further units of packed red blood cells on the fourth hospital day. The results of stool examinations for ova and parasites were negative. Stool cultures for enteric pathogens including Campylobacter, enteropathogenic E. coli, and Yersinia enterocolitica were negative. Small bowel enteroclysis revealed narrowing and irregularity of the terminal 10 centimeters of ileum.

A diagnostic procedure was performed.

Dr. Lehman: May we review the radionuclide scans and radiographs?

Dr. Wellman: The bleeding scan (Figure 1) is performed by injecting the patient's own red cells labeled with technetium at high specific activity and scanning at 10-minute intervals for one hour, then hourly for four hours, then a 24-hour image if a bleeding site is not seen on the early scans. In this case the 10-minute image demonstrates no abnormality. At 50 minutes a bleeding focus (arrow) has appeared in the right lower quadrant and at 120 minutes it has not moved. At 180 minutes this activity has diffused into the bowel lumen. This study indicates definite gastrointestinal bleeding in the right lower quadrant, from either cecum or ileum.

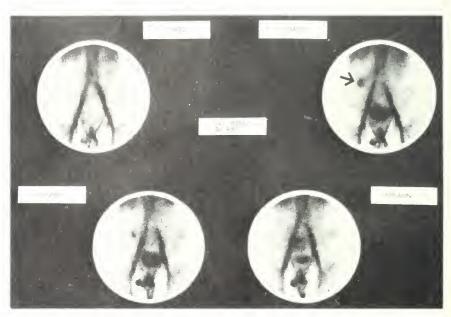


FIGURE 1: Technetium - 99m RBC labeled gastrointestinal bleeding scan. The 50 minute film shows a bleeding focus (arrow) in the right lower quadrant.

The red cell scan and an arteriogram performed later were both consistent with a bleeding Meckel's diverticulum and thus a technetium pertechnetate scan for Meckel's was performed. This scan relies on the capacity of gastric mucosa to secrete pertechnitate anions. About 50% of Meckel's diverticula contain gastrie mucosa, and acid production by this mucosa may cause ulceration and bleeding of adjacent intestinal epithelium. In this patient the sean (not shown) was negative in that there was no localization of technitium pertechnitate in the right lower quadrant.

Dr. Lappas: The first arteriogram was normal and will not be reviewed. The second arteriogram was performed electively utilizing an infusion of the vasodilator tolazoline. The vasodilator increases the diagnostic yield by making small vessels more visible and may induce bleeding and thus identify a point of extravasation. The catheter tip is in a subselective position allowing for a direct infusion into the ileocolic arcades. In this area the late arterial phase shows a mucosal

blush representing thickening of the ileal wall ($Figure\ 2$) in the right lower quadrant. Contrast extravasation, which would represent active bleeding, is not seen.

Enteroclysis is a technique for specific study of the small bowel. Following transnasal intubation, an enteroclysis catheter is advanced to the ligament of Treitz and the mucosal detail of the entire small bowel is subsequently demonstrated by a double contrast technique using barium followed by methyl cellulose. In this case the caliber and mucosal pattern of the entire small bowel is normal except for the distal 10 cm of terminal ileum (Figure 3). Here the lumen is irregularly narrowed with focal, asymmetric areas of wall thickening. An area of contrast collection (arrow) is suggestive of ulceration.

Dr. Lehman: In summary, we have a young male who was basically healthy but had an episode of diarrhea and abdominal pain four months prior to admission who presents with major red rectal bleeding. The bleeding was intermittent but required at least



FIGURE 2: Subselective superior mesenteric arteriogram demonstrates a mucosal blush (arrow) caused by thickening of the iteal bowel wall.

FIGURE 3: Small bowel enteroctysis demonstrates narrowing and irregularity of the terminal ileum (dots) and an area of contrast collection (arrow) consistent with ulceration.

seven units of blood and was significant enough to produce hypotension. Diagnostic studies of the upper GI tract and colon were essentially normal; but, several studies showed significant pathology in the right lower quadrant. Small bowel enteroclysis demonstrated grossly abnormal terminal ileum, which was undoubtedly the source of bleeding. The diagnostic procedure was surely surgical resection of the terminal ileum, which was indicated because the bleeding had not stopped. I shall return to the probable pathology later. This case is instructive from the standpoint of differential diagnosis and also because of the great

variety of diagnostic tests used to find the bleeding site. Since the bleeding was rapid yet intermittent, tests for both active and inactive bleeding were used. The availability of so many tests generates confusion, and thus I have developed an algorithm for (Figure 4) and would like to address the appropriate evaluation of red reetal bleeders.

With quantitatively significant red rectal bleeding the UGI tract must be considered a possible source. Approximately 10% of red rectal bleeders with hypotension will have upper GI bleeding with rapid GI transit of blood. Therefore, a brief history directed to

the upper GI tract, a quick search for stigmata of chronic liver disease and passage of a nasogastric tube are indicated. A negative gastric aspirate. however, does not rule out an UGI source, since 5-10% of bleeding duodenal ulcers do not reflux blood across the pylorus. Golden bile in the aspirate, however, rules out active duodenal bleeding. Thus upper GI endoscopy, as was performed in this case, is an appropriate early diagnostic step when there is red reetal bleeding and hypotension.2 It is relatively safe, is quick, requires minimal preparation and may obviate emergency evaluation of the lower GI tract.

Initial evaluation of the lower GI tract is sigmoidoscopy and if the bleed ing site is located, appropriate treat ment is applied. If sigmoidoscopy is negative and the bleeding is massive, we proceed with angiography, which will identify the bleeding lesion, usually in the colon, when the rate of bleeding is greater than .5 - lcc/minute.2 If the bleeding is slower or if we're not sure how fast it is, then the first step is a radionuclide bleeding scan. These scans are more sensitive than angiography, and will detect bleeding loss at rates as low as .1 cc/min.4 At our institution we use primarily technetium labeled red blood cells, which stay in the circulation much longer than technetium labeled albumin, and thus, by obtaining serial scans, intermittent bleeding may be identified.5 If the red cell scan is positive, angiography is done to help identify the specific lesion (e.g., arteriovenous malformation or AVM) and/or to therapeutically infuse vasopressin intraarterially. Angiography will be positive in up to 65% of brisk GI bleeding of all types.5 It is useful to recall that in nearly half of positive angiograms no point of extravasation is found but rather a structural vascular lesion such as an AVM is seen. Thus, angiography may be useful in the inactive colonic or small bowel bleeder. When bleeding is inactive, as it was when the second elective arteriogram was performed in this case, an intraarterial vasodilator may improve the yield.7 Generally, when the RBC scan is negative, bleeding is very slow or has stopped, and elective colonoscopy or double contrast barium enema is the appropriate next step.

An alternative approach to rapid red rectal bleeding utilizes upper endoscopy, which if negative is followed directly by colonoscopy. This requires cleansing the colon with an oral purge. An isoosmotic electrolyte solution such as Golytely, when given in adequate amounts, will effectively cleanse the colon in two to four hours. Jensen was able to reach the cecum with colon-scopy in 98% of 40 consecutive active

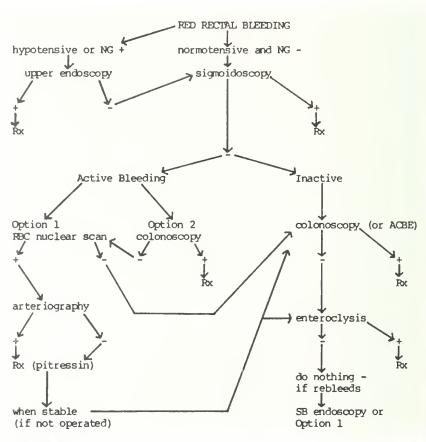


FIGURE 4: Algorithm for the diagnostic evaluation of red rectal bleeding.

rectal bleeders.9 The bleeding site was localized in the colon in 70% of these 40 patients, and approximately onethird of these patients had mucosal AVMs, which were treated by cautery through the colonoscope. Thus, colonoscopy can be effective both diagnostically and therapeutically even with active rectal bleeding. In this case, colonoscopy was performed electively, and revealed only a "red spot" at the splenic flexure. "Red spots" have considerable significance in the right colon, where they usually represent AVMs. AVMs rarely occur in the left colon and when seen they are usually just local trauma from the colonoscope. This was verified by hot forceps biopsy in this ease, which did not reveal an AVM.

Generally, we recognize the small bowel as a bleeding source by radio nuclide scan or angiogram or by excluding the UGI tract and colon via endoscopic means. Despite its great length, rapid bleeding from the small bowel is unusual, accounting for only 5-10% of rapid red rectal bleeding. In this young man small bowel bleeding was both rapid and intermittent. Consequently, tests for both active and inactive bleeding were used. Table 1 lists several methods of small bowel evaluation. We've already discussed radionuclide bleeding scans angiography, which are our choices when the bleeding is rapid. When the bleeding is slower or inactive, we have several options. I mention the Miller-Abbott tube and the string test only to point out that they are obsolete. The Miller-Abbott tube was used to aspirate intestinal secretions from multiple levels and check for blood. The

TABLE 1 Methods of Evaluation for SB Bleeding

- 1. Barium radiology
- 2. Nuclear scintigraphy
- 3. Angiography
- 4. Fiberoptic endoscopy
- 5. Miller-Abbott tube
- 6. String test
- 7. Surgical exploration

string test utilized a radioopaque string that traversed the GI tract to various levels and then was withdrawn with the hope of finding blood staining and thus localizing the bleeding site. These strings are so traumatic they produce more bleeding than they identify.

We have three choices of barium studies to study the structure of the small bowel. Of these, the traditional antegrade small bowel series is the least sensitive and clearly is inferior. Its main use is in following patients with known obvious small bowel disease or as a screening test for small bowel pathology in a patient undergoing routine UGI x-ray series. The small bowel enteroclysis (double contrast) exam described by Dr. Lappas and the retrograde small bowel series have high sensitivities for mass and inflammatory lesions. Numerous reports document their superiority over the antegrade small bowel series,10-12 The retrograde small bowel series may provide better detail of distal ileum than enteroclysis. The retrograde series is combined with a full column barium enema, is fairly uncomfortable and is technically difficult so that we generally use enteroclysis as the first-line small bowel structural study.

If enteroclysis is negative, our task is difficult. Generally, at this point we choose to do nothing and see if the patient rebleeds. We have ruled out mass lesions by enteroclysis and the patient should demonstrate persistent and significant bleeding before proceeding to more aggressive and invasive tests.

If we must proceed, angiography with or without a vasodilator is a good first step since, as noted earlier, it may identify structural lesions such as AVMs.

What about the Meckel's sean? Ninety per cent of Meckel's bleeding occurs in children. In a recent series13 of 270 scans in children, 30 were positive and 26 of these 30 were operated. At surgery only half the positives had a Meckel's, for a falsepositive rate of 50%. However, in twothirds of the false-positive studies, another mass or inflammatory lesion in the right lower quadrant was found. Thus, the false-positive rate for any pathology is only about 15%. The sensitivity of the Meckel's scan is about 85%. The single most sensitive test for Meckel's is enteroclysis,14 I believe a negative Meckel's scan is helpful but one must remember that a positive scan in an adult, particularly if an enteroclysis has already been negative for Meckel's, will have a very high false-positive rate.

Small bowel endoscopy can be done at colonoscopy by intubation of the ileocecal valve or perorally using a sterilized colonoscope. In either case, only 10-20% of the small bowel will be seen. Enteroscopes have been made which can traverse the entire small bowel but are difficult to use and are not widely available. If bleeding is persistent, exploratory laparotomy may be needed. If the surgeon is unable to locate the bleeding, then per-oral endoscopy, with the surgeon telescoping the bowel over the scope, may be helpful. Alternatively, multiple enterotomies to allow endoscopic access to the small bowel may be used. Finally, empiric resection of the right colon and terminal ileum¹⁵ or multiple cutaneous enterostomies to identify the bleeding point are last resorts.

One may ask whether this patient needed to undergo such a vigorous diagnostic work-up pre-operatively. Certainly the nuclear scan and the angiogram both suggested a source of bleeding in the right lower quadrant. Couldn't the surgeon simply explore

TABLE 2

Differential Diagnosis of Heal Segmental Irregular Narrowing

1. Inflammatory

Crohn's Disease (Regional Enteritis, Granulomatous Enteritis)
Radiation
Ischemia
Yersinia
Campylobacter
Salmonella
Tuberculosis
Actinomycosis

Adjacent abscess ± adhesions

2. Neoplasm

Malignant - Primary - Lymphona or carcinoma Metastatic - melanoma, germ cell, renal, breast, lung, carcinoid

the region and remove the pathology? In some cases, including this one, this approach would work. In many cases, though, it would not. Prior to the enteroclysis, the differential diagnosis was very large, and included lesions such as AVMs, which the surgeon may be unable to identify. Furthermore, the differential diagnosis included acute infectious processes for which we should not subject the patient to surgery, inflammatory bowel disease which may heal with medical treatment alone, and diverticulosis which often stops bleeding spontaneously. Therefore, I believe careful pre-op evaluation to make the correct diagnosis is desirable if the rate of bleeding allows. The one thing I might have done differently in this case would have been to infuse intraarterial vasopressin following the second arteriogram. However, his physicians may have decided that his amount of bleeding to that point required definitive surgical therapy and thus forewent vasopressin. I think that is reasonable.

This case demonstrates the sensitivity of enteroelysis in defining structural small bowel disease. After the

test, we are faced with essentially the differential diagnosis of diseases causing ileal segmental irregular narrow ing (Table 2). By far the most common cause is Crohn's disease. The patient had an episode of diarrhea and abdominal pain four months previously which was diagnosed as gastroenteritis but likely was a flare of Crohn's. I would be surprised if careful retrospective questioning did not reveal even more episodes of abdominal pain and bowel symptoms. While hematochezia of some degree occurs in more than half of patients with Crohn's,16 massive bleeding occurs in only 1-2% of patients and, in general, heavy bleeding is more characteristic of ulcerative colitis. In this case, there are few clinical features of Crohn's present to strengthen the diagnosis. There were no fevers, fissures, fistulas, or systemic manifestations such as arthritis, uveitis, liver disease or skin lesions. It is the enteroclysis and the consistent clinical picture which make this the likely diagnosis.

Radiation enteritis is excluded by history in this case.

Ischemic bowel occurs in the setting of systemic hypotension or embolic phenomena. There is no history in this patient of hypotension prior to the onset of bleeding and no apparent cardiac disease to suggest a source of emboli.

Yersinia enterocolitica infection can mimic Crohn's, causing an ulcerated ileitis with diarrhea lasting several weeks and associated with joint symptoms and erythema nodosum. To Specific cultures for Yersinia must be taken, which were negative in this case.

Campylobacter is routinely cultured for in stool and has been reported to produce significant bleeding, ¹⁸ especially if not treated. Salmonella attacks the terminal ileum, ¹⁹ but lack of fever and diarrhea makes both Salmonella and Campylobacter unlikely.

Gastrointestinal tuberculosis has a predisposition for the ileo-cecal area and may produce hemorrhage, perforation, obstruction, fistulas and mal-



FIGURE 5: Ulceration of the ileal mucosa. Hematoxylin and eosin. 50X.

absorption.²⁰ The cecum is affected in 85-90% of patients; thus, a normal cecum, as in this patient, is against the diagnosis. The chest x-ray is abnormal in only half of cases.²⁰ The recently negative PPD and the normal cecum make gastrointestinal tuberculosis very unlikely.

Abdominal actinomycosis occurs most frequently in the ileocecal region, often mimicking cecal carcinoma, tuberculosis, chronic appendicitis or Crohn's.²¹ Antecedent abdominal surgery or trauma is usually present but may have occurred years earlier. There is no history given of such an event in this patient. Sinus tracts are common, hemorrhage is uncommon and overall the disease is uncommon and not likely in this case.

Adjacent bacterial abcess may cause segmental irregularity and narrowing of the bowel, but seldom produces enough mucosal injury to hemorrhage.

Could a neoplasm produce these findings? The most common primary small bowel cancer is adenocarcinoma. Adenocarcinoma has a predisposition for the duodenum and proximal small

bowel, except in Crohn's disease, where the distal ileum is favored.²² Adenocarcinoma seldom bleeds massively and would be likely to cause obstruction before reaching the considerable length (10cm) of the lesion in this case.

Small bowel lymphoma may be diffuse or localized, and frequently is unassociated with peripheral lymphadenopathy or hepatosplenomegaly.²³ Ulceration and bleeding is common. I doubt the diagnosis primarily on the basis of the enteroclysis, which does not demonstrate the prominent mass effect generally seen with lymphoma.

Ileal carcinoid may be well localized but the mass effect and adjacent fibrous tissue reaction so common in carcinoid²⁴ are lacking on this enteroclysis. The enteroclysis also does not suggest metastatic disease, which seldom produces focal lesions of this length.

Dr. Glen Lehman's diagnosis: Crohn's disease.

Dr. Warfel: Laparotomy was performed and the specimen consisted of

27 cm of distal ileum plus cecum and 7 cm of right colon. The terminal ileal bowel wall was thickened and inflexible and the serosal surface was granular and rough. The mesenteric fat was thickened, and rather than stopping abruptly at the mesenteric border of the bowel as is normal, it extended onto the antimesenteric serosal aspect. The lumen of the involved ileum was markedly narrowed and three distinct linear ulcers were present, running in the long axis of the bowel on the mesenteric border. These gross features are all characteristic of Crohn's disease.25 No vessel was grossly visible in the ulcer bed.

Microscopic examination showed an ulcer (*Figure 5*) extending into the submucosa with an inflammatory infiltrate of polymorphonuclear leukocytes in the ulcer base. Fibrosis and inflammation extended from the submucosa to the serosa, demonstrating the typical transmural inflammation of Crohn's disease.²⁵ In the external layers the inflammation consisted mainly of lymphocytes and a few eosinophils.

Non-caseating granulomas are considered characteristic of Crohn's but are not necessary to make the diagnosis, since only half of surgical specimens contain typical focal granulomas. A diffuse granulomatous reaction is found in another 25%. In this case only one subserosal granuloma was found in the bowel wall but several were present in the cortical areas of mesenteric lymph nodes. Arteritis, vasculitis and inflammation of lymphatics have been observed in Crohn's and evidence of small-vessel arteritis was evident in this case.

Pathologic diagnosis: Crohn's Disease.

A physician: What is the role of radiologic embolization in the treatment of bleeding of this type?

Dr. Lappas: The traditional angiographic management of gastrointestinal hemorrhage has been vasoconstrictive therapy with vasopressin. Em-

bolization using agents such as gel foam or stainless steel coils has been used primarily for gastric bleeding. Arterial arcades with extensive anastomoses are normally present around the stomach and prevent gastric infarction when branches of the major gastric arteries are embolized. Collateral flow of this degree is typical-

ly not present in the small bowel or colon and ischemia and intestinal necrosis may occur when embolization is performed. In general, arterial embolization is not recommended for nongastric GI bleeding, unless a desperate clinical situation exists in which vasopressin has failed and the patient is not a surgical candidate.

REFERENCES

- Peterson WL: Gastrointestinal bleeding. In Sleisenger MH and Fordtran JS, Gastrointestinal Disease, 3rd ed., Philadelphia, Saunders, 1983.
- Bar AH, et al: Angiography in the management of massive lower gastrointestinal tract hemorrhage. Surg Gynecol Obstet, 150:226, 1980.
- Wright HK: Massive colonic hemorrhage. Surg Clin North Am, 60:1297, 1980.
- Alavi A, et al: Scintigraphic detection of acute gastrointestinal bleeding. Radiology, 124:753, 1977.
- Winzelberg GG, et al: Evaluation of gastrointestinal bleeding by red blood cells labeled in vivo with technetium 99m. J Nucl Med., 20:1080, 1070
- Casarella WJ, et al: Lower gastrointestinal tract hemorrhage: New concepts based on arteriography. Am J Roentgenol, 121:357, 1974.
- Keller FS, Rosch J: Angiography in the diagnosis and therapy of gastrointestinal diseases. In Sleisenger MH and Fordtran JS, Gastrointestinal Disease, 3rd ed, Philadelphia, Saunders, 1983.
- 8. Goldman J, Reichelderfer M: Evaluation of rapid colonoscopy preparation using a new gut lavage solution. Gastrointest Endosc, 28:6, 1982.
- Jensen DM, Machicado GA, Tapis JE: Emergent colonoscopy in patients with severe hematochezia. Gastrointest Endosc, 29:177, 1983.
- 10. Ekberg O: Crohn's disease of the small bowel examined by double-contrast technique: A comparison with oral technique. Gastrointest Radiol, 1:355, 1977.
- 11. Sanders DE, Ho LS: The small bowel enema: Experience with 150 examinations. Am J Roentgenol, 127:743, 1976.
- 12. Miller RE, Miller WJ: Inflammatory lesions of the small bowel: Complete reflux small bowel examinations. Am J. Gastro, 45:40, 1966.
- 13. Cooney DR, et al: The abdominal

- technitium scan (a decade of experience). J Pediatr Surg, 17:611, 1982.
- Maglinte PPT, et al: Meckel's diverticulum: Radiologic demonstration by enteroclysis. Am J Roentgenol, 134:925, 1980.
- Richardson JD, et al: Bleeding vascular malformations of the intestine. Surgery, 84:430, 1978.
- 16. Farmer RG, Hawk WA, Trunbull RB: Clinical patterns in Crohn's disease: A statistical study of 615 patients. Gastroenterology, 68:627, 1975.
- Marks MI, et al: Yersinia enterocolitica gastroenteritis: A prospective study of clinical, bacteriologic and epidemiologic features. J Pediatr, 96:26, 1980.
- 18. Blaser MH, et al: Campylobacter enteritis: Clinical and epidemiologic features. Ann Intern Med, 91:179, 1979.
- Gianella RA, et al: Pathogenesis of salmonellosis. J Clin Invest, 52:441, 1973.
- 20. Bentley G, Webster JHH: Gastrointestinal tuberculosis: A 10-year review. Br J Surg, 54:90, 1967.
- Putnam HD Jr, Deckerty MB, Waugh JM: Abdominal actinomycosis: An analysis of 122 cases. Surgery, 28:781, 1951.
- 22. Morowitz DA, Block GE, Kirsner JB: Adenocarcinoma of the ileum complicating regional enteritis. *Gastro-enterology*, 55:397, 1968.
- 23. Winawer SJ, Sherlock P: Malignant neoplasms of the small and large intestine. *In Sleisenger MH and Fordtran JS*, Gastrointestinal Disease, 3rd ed, Saunders, Philadelphia, 1983.
- 24. Kowlessar OD, Law DH, Sleisenger MH: Malabsorption syndrome associated with metastatic carcinoid tumor. Am J Med, 27:673, 1959.
- 25. Whitehead R: Pathology of Crohn's disease. *In* Korsner JB and Shorter RG (eds), Inflammatory Bowel Disease, 2nd ed, Philadelphia, Lea & Febiger, 1980.
- 26. Williams WJ: Histology of Crohn's disease. Gut, 5:510, 1964.



These instruments were the best available at the turn of the century. So was our professional liability coverage for doctors. In fact, we pioneered the concept of professional protection in 1899 and have been providing this important service exclusively to doctors ever since.

You can be sure we'll always offer the most complete professional liability coverage you can carry. Plus the personal attention and claims prevention assistance you deserve. For more information about Medical Protective coverage, contact your Medical Protective Company general agent.

44:03

MEDICAL BROKERRE CONTRIBE

BOSKE, WINGS COLDWINE

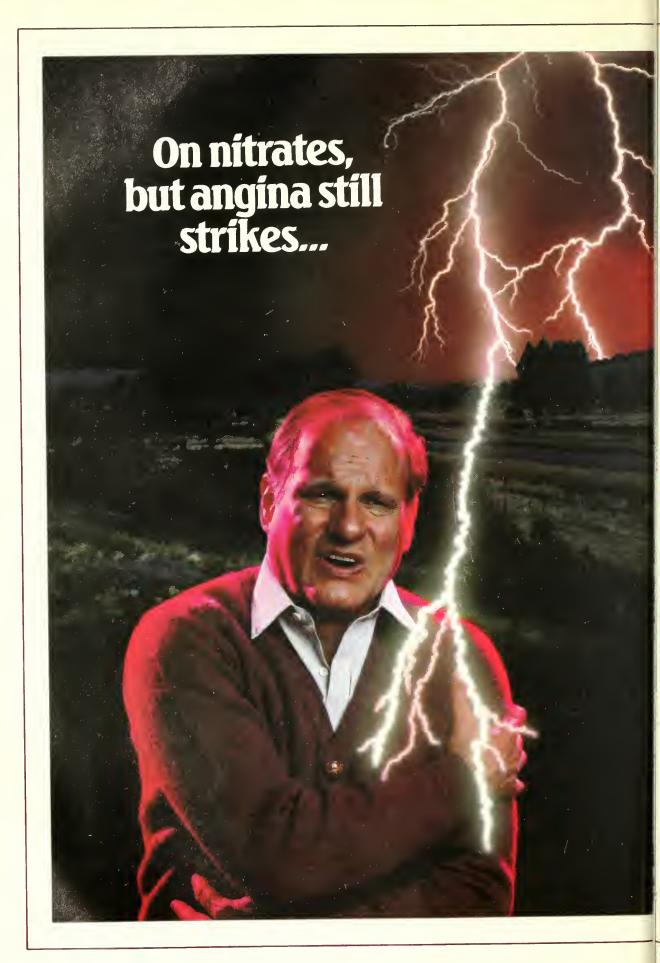
Vernon E. Hoover, John J. Lindenschmidt, Philip R. Young Suite 237, 6100 North Keystone Avenue, P.O. Box 20576, Indianapolis, Indiana 46220, 317/255-6525 Robert B. Newell, Suite 265, 2260 Lake Avenue, Fort Wayne, Indiana 46805, 219/422-4783

Motrin[®] Ibuprofen, Upjohn 600 mg Tablets



More convenient for your patients.

Upjohn



After a nitrate, add ISOPTIN

(verapamil HCl/Knoll)

To protect your patients, as well as their quality of life, add Isoptin instead of a beta blocker.

First, Isoptin not only reduces myocardial oxygen demand by reducing peripheral resistance, but also increases coronary perfusion by preventing coronary vasospasm and dilating coronary arteries — both normal and stenotic. These are antianginal actions that no beta blocker can provide.

Second, Isoptin spares patients the beta-blocker side effects that may compromise the quality of life.

With Isoptin, fatigue, bradycardia and mental depression are rare. Unlike beta blockers, Isoptin can safely be given to patients with asthma, COPD, diabetes or peripheral vascular disease. Serious adverse reactions with Isoptin are rare at recommended doses; the single most common side

Cardiovascular contraindications to the use of
Isoptin are similar to those
of beta blockers: severe
left ventricular dysfunction,
hypotension (systolic pressure <90 mm Hg) or cardiogenic shock, sick sinus syndrome
(if no artificial pacemaker is present)
and second- or third-degree AV block.

effect is constipation (6.3%).

So, the next time a nitrate is not enough, add Isoptin...for more comprehensive antianginal protection without side effects which may cramp an active life style.

ISOPTIN. Added antianginal protection without beta-blocker side effects.

ISOPTIN TABLETS

(verapamil HCl/Knoll) 80 mg and 120 mg

Contraindications: Severe left ventricular dysfunction (see Warn ings), hypotension (systolic pressure - 90 mm Hg) or cardiogenic shock, sick sinus syndrome (if no pacemaker is present), 2nd- or 3rddegree AV block Warnings: ISOPTIN should be avoided in patients with severe left ventricular dysfunction (e.g., ejection fraction < 30%) or moderate to severe symptoms of cardiac failure. Control milder heart failure with optimum digitalization and or diuretics before ISOPTIN is used. SOPTIN may occasionally produce hypotension usually asymptomatic, orthostatic, mild, and controlled by decrease in ISOPTIN dose). Occasional elevations of liver enzymes have been reported, patients receiving ISOPTIN should have liver enzymes monitored periodically. Patients with atrial flutter fibrillation and an accessory AV pathway (e.g., W-P-W or L-G-L syndromes) may develop a very rapid ventricular response after receiving ISOPTIN (or digitalis) Treatment is usually D.C.-cardioversion. AV block may occur (3rd degree, 0.8%) Development of marked 1st-degree block or progression to 2nd or 3rd degree block requires reduction in dosage or, rarely, discontinuation and institution of appropriate therapy Sinus bradycardia, 2nd-degree AV block, sinus arrest, pulmonary edema, and or severe hypotension were seen in some critically ill patients with hypertrophic cardiomyopathy who were treated with ISOPTIN Precautions: ISOPTIN should be given cautiously to patients with impaired hepatic function (in severe dysfunction use about 30% of the normal dose) or impaired renal function, and patients should be monitored for abnormal prolongation of the PR interval or other signs of overdosage. Studies in a small number of patients suggest that concomitant use of ISOPTIN and beta blockers may be beneficial in patients with chronic stable angina. Combined therapy can also have adverse effects on cardiac function. Therefore, until further studies are completed, ISOPTIN should be used alone, if possible. If combined therapy is used, patients should be monitored closely Combined therapy with ISOPTIN and propranolol should usually be avoided in patients with AV conduction abnormal ties and or depressed left ventricular function or in patients who have also recently received methyldopa. Chronic ISOPTIN treatment increases serum d goxin levels by 50% to 70% during the first week of therapy, which can result in digitalis toxicity. The digoxin dose should be reduced when ISOPTIN is given, and the patient carefully monitored ISOPTIN may have an additive hypotensive effect in patients receiving bloodpressure-lowering agents. Disopyramide should not be given within 48 hours before or 24 hours after ISOPTIN administration. Until further data are obtained, combined ISOPTIN and quinidine therapy in patients with hypertrophic cardiomyopathy should probably be avoided, since significant hypotension may result. Adequate animal carcinogenicity studies have not been performed. One study in rats did not suggest a tumorigenic potential, and verapamil was not mutagenic in the Ames test Pregnancy Category C. There are no adequate and well controlled studies in pregnant women. This drug should be used during pregnancy, labor, and delivery only if clearly needed. It is not known whether verapamil is excreted in breast milk, therefore, nursing should be discontinued during ISOPTIN use Adverse Reactions: Hypotension (2 9%), peripheral edema (1 7%) AV block 3rd degree (0.8%), bradycardia HR- 50 min (1.1%), CHF or pulmonary edema (0.9%), dizziness (3.6%), headache (1.8%), fatigue (1.1%), constipation (6.3%), nausea (1.6%). The following reactions, reported in less than 0.5%, occurred under circumstances where a causal relationship is not certain confusion, paresthesia, insomnia, somnolence, equilibrium disorders, blurred vision, syncope, muscle cramps, shakiness, claudication, hair loss, maculae, and spotty menstruation. Overall continuation rate of 94.5% in 1,166 patients How Supplied: ISOPTIN (verapamil HCI) is supplied in 80 mg and 120 mg sugar-coated tablets. July 1982



KNOLL PHARMACEUTICAL COMPANY

2194

IGNORANCE IS NO EXCUSE.

America's declining productivity is serious business.

It's about time we all got serious about it.



America's productivity growth rate has been slipping badly for several years now, compared to that of other nations. And it's adversely affecting each and every one of us. We've all seen

plants and businesses close down. Tens of thousands of jobs lost. Prices rising, quality deteriorating. A flood of foreign-mode products invading our shores. It's all part of our declining productivity rate.

We've simply got to work it out and we've got to work together to do it. But first, we need to know more about the problem and the possible solutions so we can act intelligently and effectively.

That's why you should send for this informative new booklet. It hasn't got all the answers—there are no quick and easy ways out—but it's a very good place to start the productivity education of yourself, your associates and your workers. It's free for the asking—and in quantity. Mail the coupon right away. Ignorance is no excuse.



A public service of this publication and the American Productivity Center

America. Let's work together.

	ductivity Aware Lorton, VA 2207	ness Campaign 9
productivity Pl	e to improve my ease send me o the crisis that cre ailable at cost fr	free capy af ept up on us "
Name		
Title		
Campany		
	State	Z10

CME QUIZ.

TO OBTAIN ONE HOUR OF CATEGORY 1 AMA CME CREDIT, answer the following questions by circling the correct answer on the answer sheet below. Complete and clip the application form and mail it to: Indiana University School of Medicine, CME Division, Fesler Hall 224, 1120 South Dr., Indianapolis 46223.

Diverticular Disease

CONTINUED FROM PAGES 97-100

- 1. The segment of colon most frequently involved with diverticula is:
 - a. the cecum
 - b. the sigmoid colon
 - c. the transverse colon
 - d. the descending colon
- 2. The increased frequency of colonic diverticula in Western industrialized nations probably relates to:
 - a. diet containing high fat, low fiber, and refined carbohydrates
 - b. diet containing increased amounts of beef and pork
 - differing concentrations of bile acids and increased production of cholesterol
- d. differences in fecal transit time
 The percentage of patients with colonic diverticula developing diverticulitis is closest to:
 - a. 10%
 - b. 20%
 - c. 30%
 - d. 40%
- 4. The commonest cause of colonic obstruction in adults is:
 - a. diverticulitis
 - b. volvulus
 - c. carcinoma
 - d. adhesions
- 5. Which of the following is least likely to be a presnting manifestation of diverticulitis?

- a. left lower quadrant pain and inflammatory mass
- b. large bowel obstruction
- c. massive bleeding per rectum
- d. small bowel obstruction
- 6. Which of the following is most likely to be a presenting sign of diverticulitis?
 - a. multiple recurring pea-sized bladder stones without evidence of stones in the upper urinary tract
 - b. pneumaturia
 - c. recurring bladder infections with *B. fragilis*
 - d. recurrent hemorrhagic cystitis
- 7. Which of the following is not an indication for elective resection of the colon for diverticular disease?
 - a. pneumaturia in a patient with diverticulitis
 - inability to differentiate stricture from carcinoma on the basis of radiographic and/or endoscopic studies
 - c. recurring cystitis in a female with total colonic diverticulosis
 - d. diverticulitis not promptly responsive to medical treatment
- Temporary colostomy was abandoned as the preferred treatment for acute diverticulitis because:
 - a. of the frequency of recurrent bleeding after closure

- b. of the development of techniques for sterilizing the bowel
- c. of the high incidence of associated carcinoma
- d. about 10% of patients died later of the disease and a larger percentage were not well, in spite of surviving the acute illness
- 9. Which of the following statements is not true?
 - a. Diverticulosis is primarily a disease of the total colon
 - b. Diverticulitis is primarily a disease of the left colon.
 - All segments of the colon with diverticula should be removed if one is operating for bleeding
 - d. All segments of the colon with diverticula should be removed if one is operating for chronic diverticulitis
- 10. Current recommendations for surgical treatment include all but which one of the following statements?
 - a. Transverse or longitudinal myotomy should be done for patients with recurrent symptoms of diverticulitis when the terminal sigmoid begins to show narrowing on radiographic examination.
 - One staged resection and anastomosis is preferable if the colon can be prepared adequately.
 - c. The Hartmann procedure should be used for most patients with diverticulitis who are not adequately prepared for a one stage operation.
 - d. The three stage method of operative treatment may be more appropriate than other methods for older patients with fulminant diverticulitis.

JANUARY CME QUIZ Answers

Following are the answers to the CME quiz that appeared in the January 1985 issue: "Childhood Sexual Abuse: Guidelines for Evaluation," by Margaret J. Blythe, M.D. and Donald P. Orr, M.D.

- I.D. and Donald P. Orr, M.D 1. d 6. d 2. c 7. c 3. d 8. b 4. a 9. c 5. b 10 b
- Answer sheet for Quiz: (Diverticular Disease)

1. a b c d
2. a b c d
3. a b c d
4. a b c d
5. a b c d
10. a b c d
10. a b c d

I wish to apply for one hour of category 1 AMA Continuing Medical Education credit through the I.U. School of Medicine. I have read the article and answered the quiz on the answer sheet above. I understand that my answer sheet will be graded confidentially, at no cost to me, and that notification of my successful completion of the quiz (80% of the questions answered correctly) will be directed to me for my application for the Physician's Recognition Award of the American Medical Association. I also understand that if I do not answer 80% of the questions correctly, I will not be advised of my score but the answers will be published in the next issue of Indiana Medicine.

Name (please print or type)

Address

Identification number (found above your name on mailing label)

Signature

To be eligible for this month's quiz, send your completed, signed application before March 10, 1985 to the address appearing at the top of this page.

You'd Better Bring Your Own Meat Sauce

Commentary

S ARE MOST PHYSICIANS, I am extremely concerned about the sudden unexpected massive government programs enacted over the past two years which pertain to medical care. These are preached as "cost saving," yet we are all aware of how past government programs have been "cost saving." Just ask the farmers. For the public to understand the impact of these laws there are two major difficulties. First, one must be able to decipher the meaning and content of the government programs (which are often instituted almost too quickly to permit this); and secondly, one must be able to communicate these programs and their results to those who will be most affected. Many of these people who are affected have little education and are certainly no match for the politicians' thinking process.

Ways of dealing with these two problems are numerous, each with its own inherent problems. One way to communicate these programs is through statistics. We all know how difficult statistics are to handle and interpret. Also, we all know how easy it is to manipulate and bias a statistical analysis. It is at best confusing, and as stated above, is often used for misleading an audience.

Another problem in dealing with the interpretation and dissemination of this information is the built-in bias that most of us have. Yes, the medical field is biased, but who is better equipped to understand and interpret this infor-

The author, a diplomate of the American Board of Ophthalmology, is in private practice at 501 S. Sixth St., Vincennes, Ind. 47591.



RALPH W. STEWART, M.D. Vincennes

mation than those who are in the main stream of the health delivery process? Hopefully, we can control this bias and prevent it from producing any strong influence.

Another mode of delivery of this information is by analogy. This usually is easy to understand; but as we all know, often it has unequal parallels and eventually breaks down when carried to the extreme. However, for simplicity and emphasis this is often the quickest way to understand and deliver the facts. This analogical approach permits:

- 1. A common sense reasoning.
- 2. Parallels with more familiar systems.
 - 3. A decrease in bias of profession

- 4. An economic emphasis (obviously, the crux in these medical issues).
- 5. A decrease in one's most emotional bias by dealing with another parallel field of endeavor.

I would like to propose the following letter to our patients as an analogy to what the present government programs may do to the future of medical care:

MY RESTAURANT

Dear Patron:

Congratulations! Your government has wisely mandated that this restaurant present a "Prix Fixe" for all items. You may now purchase a T-bone steak for the same price as a hamburger. This is regardless of:

- 1. Cost of food.
- 2. Preparation needed for the food.
- 3. Cost of presenting and serving the food.
- 4. Number and type of employees needed to operate the restaurant.
- 5. Cost of the physical plant (decor, tables, carpet, kitchen equipment, etc.)
- 6. Cost of equipment repair and updating.
- 7. Cost of training and updating employees.
 - 8. Cost of new products.
- 9. Cost of expansion or replacement.
- 10. Cost of personnel and equipment to meet the cleanliness and service standards of a restaurant.

Now that this has been mandated, what will the owner/manager need to do in order to stay in business with this new "Prix Fixe"? The following results are proposed:

CONTINUED ON PAGE 142

clight

INDIANA GAZETTE

TALWIN NX...BUILT-IN PROTECTION AGAINST MISUSE BY INJECTION

Major Analgesic Reformulated

Now contains naloxone, a potent narcotic antagonist

Extra security added to proven efficacy and safety

No longer do doctors have to deny patients the benefit of an effective oral analgesic for fear of its misuse by injection.

Winthrop-Breon Laboratories has met a nagging problem by reformulating TALWIN® 50 (pentazocine HCl tablets) with the addition of naloxone, equivalent to 0.5 mg base. The reformulated product is called TALWIN® Nx.

The original formulation had been subject to a form of misuse among street abusers known as "T's and Blues." TALWIN 50 and PBZ*, an antihistamine, would be ground up together, put into solution, and injected intravenously. The combination produced a heroin-like high. Because naloxone is a narcotic antagonist when injected intravenously, it acts to nullify any high a "T's and Blues" addict might expect from the pentazocine in a combination of TALWIN Nx and PBZ. When taken as directed orally, the naloxone component of TALWIN Nx is inactive. Thus, TALWIN Nx continues to be a safe, effective, oral analgesic for the relief of moderate to severe pain, now providing added security against misuse.

Registered trademark of Ciba-Geigy Corp for tripelennamine.



The reformulation of Talwin 50 to Talwin Nx involved the addition of 0.5 mg naloxone to help prevent misuse by injection.





Analgesic for Oral Use Only

Contraindications: Harmond

Contraindications: Hope and all has to the formation of consister.

[ALWES NX and a read of the following the following the product of the first of the following the read of the following the follow asynthmografi dependence taken alone and may have a leftive CNS bepressant properties. In on hination with alocking or the SNS bepressant properties, to no hination with alocking or the SNS bepressants. Myocardial Infanction—a write author in particle. At himpiradial infanction or which have readed by wearings. Cacing general Milagenesis. Impariment of Levi (4): No being been studies as in mals to test four arcongenesis ties, been performed. Programy Category C. Shrold he gives to preparate women only it leads in expected Labor and Definery, base write raid or in women fellowing present are infants. Effect or uniform a Tetro, found not along in the infants of the second program of the infants of the second program of the infants of the second program of the infants of the program of the infants of the program of the program of the infants of the program of the pro

the algebra y reason have not ober established Adverse Reactions. Cardiovas volume Hypothesian stacky, and day symology. Respiratory. Railely, respiratory depression. CNS Acute CNS Manufestations of care instance hallownations (conally swiad). Its contact no actinities in which have the nod spontagenerally with cappening of thomas, may remain finding is reinstituted. Other CNS Effects. Dizzoness lighthesidedness seda. spontanic asty with it a penind of binns, may term if dring is sensitiuted. Other CNS Effects. Dissinois lightheadedness sedation explains distarted decains, ballio matinic, irritability excitement frontits, tremin. Gastrointestinal. Nausea symitting in supplicit, discribin aministrational. Nausea symitting in supplicit, discribin aministrational had been distribes. Allergia. Edema of the facility format its including profits. Bushed skin including plethora. Ophthalmic Visual bloom plant for the providy granulic cytes) which is usually reversible, in indicate thin send ensuing that other. Heada he chills, insorbina weak ness, unmary peterbina. Other Heada he chills, insorbina weak ness, unmary peterbina. Other Heada he chills, insorbina weak ness, unmary peterbina. Other Heada he chills, insorbina weak ness, unmary peterbina. Other Heada he chills, insorbina weak ness, unmary peterbina. Other Heada he childs are profit in the profit of the child amistinate dependence and withdrawal symptom case from the profit of the profit of the profit of the control of the profit of the prof

entose and about by the oral mote. Secree, experiethal consequences may result from misuse of tablets. by reger to real rentaging mesting in some manifests and state is yn reger ton red rentalmen in in combination with other substances onto as purionally enthulic vascular occlusion, alceration and abscess and with floward symptoms in namons dependent individuals. Overdosage: Irradianal Oxygen intravenous fluids vasopres colored Assessed on controlled variibation slippid also be innisidered.

r respilatory depression, parenteral naloxone is a specific and

Place consoly full product information before prescribing

Winthrop Breon WIN 4 41415ER

Wmthrop Breno Lahoratur e

Your Own Meat Sauce.

CONTINUED FROM PAGE 140

- 1. Only cheaper items will be served (no more T-bones).
- 2. Only items which meet minimum standards need be purchased (and possibly less if "enforcers" are not present all the time).
- 3. Preparation of food will be stark. (Appetizing presentation is not required, only nutritional value.)
- 4. Pleasant service with a smile now not required. (These people get paid more in the market place where free competition exists.)
- 5. Only one waiter per 20 tables (or maybe only smorgasbord with no table service).
 - 6. Will go to "warehouse" decor.
- No new items will be considered. unless the cost is less (regardless of their nutritional value or demand).
- 8. No new equipment will be bought. (Since there will be no excess profit to put into capital assets.)
- 9. Minimal repairs on physical plant and equipment will be made.
- 10. Patron will get less for his "Prix Fixe" because 25-30% of his "pay-in" (taxes) will go to pay the salaries of those operating and regulating the program.

And now for the bottom line-what the owner/manager (and patron) can expect over the long term:

- 1. No more steak, i.e., loss of menu choice.
- 2. Low quality restaurants will fare best and survive longer.
- 3. Restaurants probably out of business, i.e., loss of choice where you can eat.
- 4. What is left will be rationed. ("Supply is less than demand," since free market no longer reigns.)
- 5. Monies available for foods and service will be 25 to 30% less because of bureaucratic "enforcement" expenses.
- 6. All of the above leads to more government control, which leads to higher costs (taxes) since more government regulatory agents are needed, etc.

I now humbly submit to you to apply this somewhat simplistic explanation to the health care field. The above situation is what our government has decided to do in order "to control health costs."

> Sincerely, Ralph W. Stewart Owner of Restaurant

BROWN THE BROWN PHARMACEUTICAL CO., INC.

2500 West Sixth Street, Los Angeles, CA 90057

For Full Prescribing Information, Please See PDR. PDR



Android 5 Buccal 10 Oral 25 Methyltestosterone U.S.P. Tablets

ANDROID F

Fluoxymesterone U.S.P. Tablets, 10_{mg}.



Marketing and Your 4 PR Pressure Points

LEW RIGGS, Ed.D. LINDA ALPERT, RN, BSN Phoenix

VERY PHYSICIAN has public relations. The only question is whether it is good or bad. Because that is true, public relations is integral to practice management. The purpose of marketing is to provide some techniques for improving public relations so that your patients will automatically think of the practice as the obvious place to refer new patients.

The key to effective public relations in your practice lies in four places. Known in public relations parlance as "pressure points" because they are areas of focused contact with your patients, they are crucial to you. If you actively cultivate these four pressure points the returns will include numerous practice management benefits of direct bottom line importance to you. The four key pressure points are the office visit, the waiting room, billing and the telephone.

The Office Visit

One of the most common problems that patients have directly related to the office visit is unanswered questions during and after the visit. Once he enters the examining room, the patient's focus changes from what he wants answered to what the doctor is

From the Good Samaritan Medical Center, 1111 E. McDowell Road, Phoenix, Ariz. 85062.

Dr. Riggs is Director of Public Relations, Good Samaritan Medical Center, Phoenix. Ms. Alpert is Administrative Director, Pulmonary Care Center, Good Samaritan Center. Both are nationally known speakers and authors and are listed in Who's Who in the West.

going to give him. Patients are not thinking just then about questions, but they come later and often wind up unanswered.

The patient hopes to initially hear an organized, complete recap of his condition from the doctor. To help you do that, we suggest using a patient flow sheet (Figure 1). First published nationally in Fison's Allergy Nurse Network in 1981, the flow sheet permits the physician to maximize the allimportant personal contact at the beginning of the visit by concentrating on the patient with authoritative information, rather than rifling through a

	FLOW	SI	I E E	T		
VITALS:	DATE:					
	HEIGHT:					
	WEIGHT:					
	TEMP:					
	PULSE:					
	BLOOD PRESS:					
MEDICATIONS: Name of Medications		Script				
			_			
OTHER ROUTE SCREENING						
~ Caverental (C						

FIGURE 1

medical record. With a column for each patient visit, the flow sheet contains a consolidation of information that usually appears in several different places in a patient's records.

First impressions are vital. Each office visit is a renewed first impression. A technique such as the patient flow sheet kept on top of the chart gives you the advantage of transmitting a one-on-one image of being instantly and reassuringly knowledgeable about the patient's entire history. You can be confident that repeated impressions of this kind will be relayed to the patient's friends who are seeking a physician.

The Waiting Room

Much of the anxiety felt by patients has less to do with their medical condition than with the element of time. Patients assume they will have to wait. That's not what bothers them. In our fast paced society, people are increasingly aware of the value of their own time, not just the physician's, and time taken away from children or work is valuable to them. But, if that time is devoted to their medical problem, it will be judged worthwhile.

A tool which uses that time productively is the patient communication sheet. When the patient walks in the door, the receptionist provides a pen, often with the doctor's name on it, and a form consisting of a face sheet and an attached piece of carbonless NCR paper to be filled out in the waiting room. There are three sections-"Important Questions to Ask the Doctor." "Take Home Instructions" and a section on how to call the office with questions (Figure 2). When it is completed, the patient uses it during the visit and takes the original home, leaving the copy with you. The word "Important" in the first section is important in itself. It encourages the patient to limit and "prioritize" questions, rather than compulsively listing everything.

The waiting room exercise accomplishes the following:

1. Waiting time is channeled into reducing the uncertainty of what ques-

PATIENT COMMUNICATION SHEET

NAME _	DATE:
	IMPORTANT QUESTIONS TO ASK THE DOCTOR
1	
3.	
	TAKE HOME INSTRUCTIONS
MEDICA	TIONS:

OTHER:

RETURN APPOINTMENTS: _____Weeks, ____Months

- 1. For any significant problems or questions during regular office hours Monday through Friday, 9:00/a 5:00/p, call 347-1892 and ask to speak with the nurse.
- 2. In case of emergency, after hours, call 496-8527 to page me or the other doctor on call.

FIGURE 2

tions the patient wants answered and the fear of not asking them intelligently.

- 2. It allows for the phenomenon of forgetting previously thought of questions during the first stage of the office visit.
- 3. The waiting room becomes part of the *purpose* of visiting the doctor, rather than dead time.
- 4. When the physician writes in the instructions that he and the patient have discussed during the visit, both he and the patient have the same information. Mis-communication is minimized. Also, there will be fewer parting doorway shots of "Oh, I forgot to ask you just one thing . . ."

Billing System

Public utilities have for years used utility bills to educate consumers, and with surprising success. Physicians can do the same. One technique is to include on the back of the bill a simple glossary of commonly used office tests and what they mean. Tell the patient what an SMA 12 or a CBC is, what a urinalysis or a chest x-ray tells you and the knowledge will be appreciated. Best of all, include easily understood instructions on how to read the bill, so the patient doesn't have to call the office for an explanation. If you are billing for hospital visits, you can divert angry calls over the hospital's own charges by providing on your bill a name and number at the hospital for questions on those expenses. Most hospital business offices will be happy to cooperate with you on that.

Telephone

Back to the patient communication sheet. It doesn't record the entire office visit but is rather a log of key concerns and answers. It employs the well known principle that verbal instructions followed by written ones enhance the degree of retention. It will reduce the number of unnecessary phone calls. But, when a call is necessary, both you and the patient will have the same piece of writing in front of you. You both will be talking about the same thing. It will also help you control when and how the call is received by the section on the procedure for calling the office. That section should explain your office system for handling calls and who besides yourself is qualified to give answers. If it does, you will instantly avoid a whole category of complaints about your inaccessibility. Those complaints, along with waiting room problems, are chief among the forces that convert steady patients into doctor shoppers.

Enhanced Referrals

Most referrals come from your existing patients – 50% to be exact and 74% if you are a family practitioner. You have, therefore, an automatic referral network going for you—or against you. The foregoing techniques are simply effective, proven ways of enhancing your built-in referral net-

work. They focus on those crucial points where the patient comes into direct contact with you and your practice.

Since you can't avoid having public relations of one kind or another, you might as well make it work for you. By concentrating on the four main pressure points, you can not only retain existing patients who are key to your referral network, you can improve your own efficiency and that of your staff. You can use practice management as a PR adjunct to practicing good medicine.

Indiana Physicians: Come to Chicago

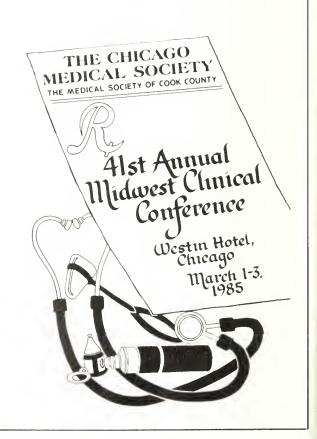
Attend the
41st Annual Midwest Clinical Conference,
the Midwest's largest CME event.

March 1, 2, 3
Westin Hotel—Chicago

- Reduced room rates
- 30 specialty societies represented
- 20 hours CME credit available

For information, please contact:

Chicago Medical Society 515 N. Dearborn Street Chicago, Illinois 60610 312/670-2550 ext. 238

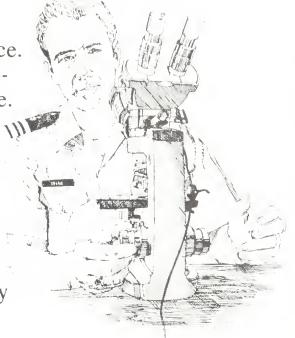


Practice Made Perfect.

In Navy Medicine the emphasis is on patients, not paperwork.

As a Navy doctor you step into an active and challenging group practice. You work with state-of-the-art equipment and the best facilities available.

Highly trained physician's assistants, hospital corpsmen, nurses and hospital administrators not only provide medical support, they attend to almost all the paperwork. As a result, you're free to make medical decisions based solely on the needs of your patients.



Along with your professional development, you'll enjoy the lifestyle and fringe benefits of a Navy officer. Beginning salaries are competitive with civilian practice for most specialists.

> TO LEARN ABOUT THE NAVY'S PRACTICE MADE PERFECT, SEND YOUR CURRICULUM VITAE OR CALL: Lieutenant Dewey Meiboom TOLL FREE 1-800-382-9404 ext. 6298

> > Navy Medical Programs 575 N. Pennsylvania Indianapolis, IN 46204

BeThe Doctor You Want To Be. In The Navy.



AUXILIARY REPORT

Judy Koontz (Mrs. James A.) President, ISMA Auxiliary

The AMA's Education and Research Foundation (AMA-ERF) was established 35 years ago to help assure quality medical education and to support research in the nation's medical schools. Because of spiraling costs and shrinking government subsidies, medical schools increasingly depend upon private sources to help meet their needs.

From modest beginnings in 1950, the AMA-ERF has distributed \$38 million in gifts to medical schools; guaranteed over \$95 million in loans benefitting more than 40,000 medical students, interns and residents; and supported numerous research projects.

The AMA-ERF needs your continuing support. Donors themselves determine which foundation funds and which medical school will receive their contributions (which are tax-deductible). Here in Indiana, friends and alumni have generously supported the I.U. School of Medicine over the years. Last year, for example, the foundation sent more than \$74,000 to ISMA for the I.U. School of Medicine.

Dr. Walter J. Daly, dean, I.U. School of Medicine, recently thanked auxilians for their AMA-ERF support. He pointed out that Indiana medical students have debts averaging \$20,000 by the time they graduate.

Dr. Daly explained that, for the past several years, AMA-ERF funds have been used "for special enrichment programs for our students, giving an op portunity to provide income for students while they spend blocks of vacation time under close faculty supervision in special experiences." He said that during the vacation time between the first and second years the school offers special programs and stipends for students who would otherwise be unable to take advantage of these opportunities.

"Currently, we provide such opportunities for 25 students supported by AMA-ERF," Dr. Daly said. "I know of no better use for the money. You can be proud that your support has provided not only money for students but



A 12-ROOM DOLL HOUSE, more than 5 feet high, complete with miniature furnishings, is the centerpiece of this year's AMA-ERF fund-raising project. Its new owner will be announced in April.

has also provided them with vacation opportunities they could not otherwise afford.

"Although our school is a state school, the state of Indiana provides only one-third of the money required for our current programs. Only with the support of groups such as yours can we look to the development of those special programs which help to make our school exceptionally good."

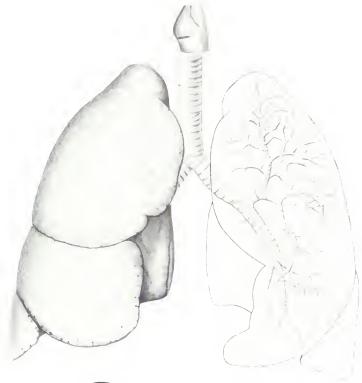
The ISMA Auxiliary is very active in generating money for the AMA-ERF. Each year, your Auxiliary members sell Christmas cards, support "Sharing Cards" (see Indiana Medicine, December 1984, page 972), and conduct special fund-raising projects in their counties.

Our state project this year involves a doll house. An anonymous donor had the house built as a replica of a doll house owned by Madam Schlumberger, wife of a noted French oil technologist.

More information on the doll house project will be sent to auxilians. Its new owner will be announced at the Auxiliary House of Delegates meeting in April.

The fund-raising efforts of the Auxiliary and the generosity of the contributing medical family have secured AMA-ERF's past effectiveness and assure its future success. Of the many worthy causes to which you can contribute, few can match AMA-ERF in providing such lasting and important benefits for the people of this country.—Lura Stone, AMA-ERF chairman for ISMA-A

Consider the causative organisms...



cefacior

250-mg Pulvules t.i.d.

offers effectiveness against the major causes of bacterial bronchitis

H. influenzae, H. influenzae, S. pneumoniae, S. pyogenes (ampicillin-susceptible)

f Summary Consult the package literature for prescribing mation

mation

autons and Usage Ceclor* cetaclo. Lilly is indicated in the
iment of the following infections when caused by susceptible
into of the designated microorganized incoorganized in size. Lespitality infections including pneumonia caused by in producerus pneumoniae (Diplococcus pneumoniae) Haemoph
influence and S progenes (group A beta hemolytic
blococcis and S progenes (group A beta hemolytic).

by to the cephalospoin group of antibiotics
impass in Princitu. In SENSITY PATIENTS GEPHALO
RIM ANTIBIOTICS SHOULD BE ADMINISTERED CAUTIOUSLY
ELS CLINICAL AND LABORATORY EVIDENCE OF PARTIAL
BS. ALLEHGENICITY OF THE PENICIL LINS AND THE
ALGOSPORINS AND THER EAR INSTANCES IN WHICH
ENTS HAVE HAD BREATONS INCLUDING ANAPHYL AND
INTO HAVE HAD BREATONS INCLUDING ANAPHYL AND
INDUSTRICT
INDUSTRICT

Table of the state of the state

ment should include sigmoidoscopy appropriate bacteriologic studies and fluid electrolyte and piocen supplementation. When the colhist does not improve after the drug has been discontinued, or when it is severe oral vaccomycin is the drug of choice this intribution; associated by periodicing the produced by C attribute. Other causes of colhis should be ruled out.

produced by C. afficile. Other causes of cothis should be uited out.

Pracaulous, General, Precaulous. If an allergic reaction to Cector' telepact in the process that due should be descontinued to descontinued to the control telepact in the course should be interested by the course of the course

solitis Usage in Pregnancy — Pregnancy Category 8 — Reproduction studies have been performed in mice and rats at doses up to 12 imes the human dose and in feriels given three times the maximum

human dose and have revealed no evidence of imparied feithfur of harm to the fletus due to Cector "ceclacior Lifly. There are however, no adequate and well controlled studies in pregnant women. Because animal reproduction studies are not always, predictive of human response this drug should be used during pregnancy only if clearly needed. **Musray Mothers**—Small amounts of Cector have been detected in mothers, smits following administration of single 500 mg doses Average fevels were 0.16 (2.0.0.2.1) and off on morphing it will there four and five hours respectively. If acc amounts were continued to the control of the control of

Use in milants less than one month of age have not been established Adverse Reactions. Adverse effects considered related to the apy with Cector are uncommon and are listed below. Gastrointestinal symptoms occur in about 2.5 percent of patients and include dictined. I in 70 II. Symptoms of pseudomembanous can and viniting have been reported size and tools treatment. Nausea and viniting have been reported size and tools treatment. Nausea and viniting have been reported size of the state of the size of the size of the size of the been reported size of the size of the size of the size of the been reported size of the size of the size of the size of the been reported size of the size of the size of the size of the precent of patients and include mobilition exploses size each occur in less than 1 in 200 patients Cases of seven seckness size each occur in less than 1 in 200 patients. Cases of seven seckness size each occur in less than 1 in 200 patients (Cases of seven seckness size each occur in less than 1 in 200 patients (Cases of seven seckness size each occur in less than 1 in 200 patients (Cases of seven seckness size each occur in less than 1 in 200 patients (Cases of seven seckness size each occur in less than 1 in 200 patients (Cases of seven seckness size each occur in less than 1 in 200 patients (Cases of seven seckness size each occur in less than 1 in 200 patients and seven size of seven seckness size each occur in less than 1 in 200 patients and seven size seven size of the seven seven seven size size of seven seven seven seven seven seven seven and the seven seven seven seven seven seven and the seven seven seven seven seven seven seven and the seven seven seven seven seven seven seven seven and the seven seve

the syndrome Cases of anaphylaxis have been reported, half of which have

Note: Cector: Icelacin LTIV: continued cated in patients with known allergy to the ceptual ispones, and should be given 18 atoms by to penculin whereigh patients. Permittin is the usual drug of choice in the treatment and prevention of streptors call infections moduling the prophilar time internal lever See prescribing information.

1984 ELI LILLY AND COMPANY



Additional information available : the profession on request from Fir Lilly and Company indianapolis | Indiana 46,285

EDITORIALS

MATERNALISM The Perils of Terminology

Guest Editorial

In this issue of Indiana Medicine. Dr. Renate Justin examines the art of medicine (see "Maternalism: A Sound Concept in Medicine"). She identifies three separate techniques which physicians use at various times in varying degrees. Her descriptions conjure up images of physicians all of us have known. She points out that the categories are but spots on a spectrum of physician behavior in management of patients. One can reflect that the predominant hue of the spectrum changes often in history for many different reasons—scientific, sociologic, moral and political, to name a few.

Dr. Justin would add "maternalism" to "autonomism" and "paternalism" as the principles which should underlie a doctor's approach to patient care. She would allow "inner directed" patients their autonomy but would provide autocratic and democratic choices for those considered "other directed." She hopes that all physicians will be adaptable enough to use the right mixture of these three principles—at the right time to the right patients.

But the stated principles are labels to be applied to patients and their doctors. And the labels are words which some will call pejorative. Why not remind doctors they are, in fact, teachers and their patients will require teaching techniques tailored to their individual talents and temperaments. The art of medicine could then flourish, until and unless some paternalistic outside agency decrees identical treatment for every patient with the same malady.—
Thomas J. Conway, M.D., Terre Haute

Gynecologist Comments on STD Article

Letter to the Editor

I enjoyed the (CME) article on "Sexually Transmitted Diseases" by Dr. Robert B. Jones (November 1984). However, I must disagree with his statement that podophyllin is relatively ineffective against condyloma acuminatum.

Quite to the contrary, in my experience, podophyllin will cure the vast majority of cases of vulvar condyloma. It may require several visits to accomplish this, but it certainly can be done. I feel it is important that coitus be prohibited during the time of therapy until all of the warts are gone. I also feel that these patients should have Pap smears every six months for a year or two after the diagnosis has been made.—George S. Porter, M.D., Richmond, Ind.

The Author Replies

I appreciate Dr. Porter's comments ... and quite agree that podophyllin is highly effective in many patients. Unfortunately, most of the available data on efficacy is from uncontrolled clinical trials in men.* I am not aware of any published data on its use in the treatment of vulvar condyloma. Cure rates in men ranged from 22% to 50%. Unfortunately, even in those patients who are cured, virus infection may persist in adjacent tissue, leading to recurrences at a later time.-Robert B. Jones, M.D., Associate Professor of Medicine, Microbiology and Immunology, Indiana University School of

*Margolis S: Therapy for condyloma ac uminatum: A review. Rev Infect Dis, 4:S829-836, 1982.

The Impact of DRGs and Cost Containment

Guest Editorial

In October 1983, hospitals across the country began to experience the impact of yet another governmentally imposed scheme to keep the lid on rapidly expanding health care costs. A system of prospective payment was established for Medicare under the Social Security Amendments. The system is based on the assignment of patients to one of 467 Diagnostic Related Groups (DRGs). Hospitals are reimbursed a set amount based on the assigned DRG, regardless of how long the patient stays in the hospital or what services are provided. If the pa-

tient's care costs more than the DRG allows, the hospital absorbs the loss. For what may be the first time, there is an incentive for hospitals to control costs,

Under the traditional payment systems, hospitals had built in incentives to grow, to add new services, to expand departments, and to add the latest technology. Where Medicare and Medicaid cost \$7.5 billion in 1967, in 1983 they cost \$76 billion. In 1963 the average cost per day to the hospitalized patient was less than \$40. Twenty years later, daily charges of \$400-\$600 are not uncommon.

DRGs are not the only cost contain ment mechanism that has been instituted. There are estimated to be more than 800 state programs designed to hold down health care costs. Undoubtedly, all of these programs have to some degree been influential in slowing the growth of health care costs from 11.6% in 1982 to the present 6.8%. DRGs promise to have the most impact, if only because of the underlying incentive to develop efficiencies in health care delivery and because hospitals account for the largest share of health care expenses. Several states have adopted prospective payment for all payers, not just Medicare patients.

Although in this first year the DRG plan is less than one-quarter implemented, some effects are already being felt.

In our area, hospital census is down. Hospitals are currently operating at 60%, or less, of capacity. One reason appears to be that physicians are altering their styles of practice. We are not seeing one standard of care for Medicare patients and another standard for private patients; rather, physicians are considering alternative ways to treat all their patients.

With reduced patient population, hospitals, as a labor intensive industry, are making some rather obvious cost reductions. They are closing wings, floors, or wards to lower maintenance and utility costs; they are laying off personnel; they are reducing hours of personnel, and in some cases, cutting wages.

Patients are being discharged earlier. Average length of stay has

declined from 9.4 days to 8.7 days for acute care hospitals. These earlier discharges are accelerating the needs for home health care, as the patients require more sophisticated treatment and care after discharge. Patients are being discharged to intermediate care facilities and nursing homes where around-the-clock care is available. In some cases, hospitals are actually paying the charges for the long-term care home since it is cheaper than continuing to support the daily hospital rates after the prospective limit has been reached.

It is predicted that smaller hospitals (up to 50 beds), will consolidate, close, or be sold to for-profit corporations. The latter, however, are reconsidering their expansion plans, and avoiding states where additional cost regulations have been implemented.

In short, hospitals are seeking both to reduce expenses and to offset anticipated lost revenues. We are seeking an emphasis on ambulatory one-day surgical centers; on psychiatric care and facilities; on development of drug abuse and alcoholism centers; on areas not included in the 467 DRGs. Permission is being sought to convert acute care beds to long-term care beds. Hospitals are entering both the home health field and the nursing home field, and using their power of referral to ensure their revenue and market share position.

On the cost side of the ledger, pharmaceuticals, as always, seem to be a target for hospital administrators. Although the pharmacy accounts for only 5% of the total hospital budget, drug costs are singled out because they are highly visible. Drug costs are an identifiable expense for most hospitals.

In the short run, the effects of DRGs appear to have been an initial impact in slowing the growth of health care costs. In the long run, we can look for increased patient prescriptions and home health care. In the short run, the focus on pharmaceuticals is most likely to involve drug purchasing tactics, formulary changes, and education of the medical staff about drug costs. In the long run, long range benefits are most likely to accrue from a change in the philosophy of many of the nation's

hospitals. Most importantly, hospitals will be forced to develop cost accounting methods which focus on the total costs relative to a particular diagnosis, rather than accounting systems which focus on departments or functions.— "Action in Pharmacy" Newsletter, Kansas City, Mo.

The Pirates Strike Again Guest Editorial

There have been many of our American systems and/or industries that were the envy of the world. Little by little and step by step their number has dwindled—usually with the aid of the Pirates of the Potomac (Congress) and the Fuzzy Thinkers of Foggy Bottom (The Federal Bureaucracy).

One of the earlier casualties was the railroad system. Regulations and employee feather-bedding have reduced most of the system to a shambles. The steel industry may be wounded beyond recovery. Our education system has been reduced to a school system whose educational arm has been subverted to baby-sitting, feeding, racial integration, and drug flea-marketing functions. Our agricultural "industry" has become a money-losing business for many of our farmers.

Despite these gloomy situations, we continued to have two outstanding systems that remained the envy of all the world. We had a telephone system that worked. Any child or adult could pick up a phone at any time and get near-instantaneous connection with any other phone in the country. From the customer viewpoint, it was simple, efficient, relatively low in cost, and totally reliable. It was so reliable that it was referred to as "Ma Bell." The Fuzzy Thinkers apparently were unable to tolerate such effectiveness and simplicity, so we approach the 21st century with this American invention and industry broken up. Who will be able to put this humpty-dumpty mess back together again into a system that will work as well? Or as efficiently? Or as economically?

If one has done much foreign travel by air, he has probably observed that he usually travels on Boeing aircraft. It gives me a feeling of national pride to observe that most of the airlines of the world use our American-made Boeing aircraft as Boeing airplanes are seemingly recognized everywhere as the best. With such reputation and recognition, I wonder how long it will take the Pirates and Fuzzy Thinkers to decide to take action that will reduce our aircraft industry to a shambles.

Then we look to our own "medicalhospital-pharmaceutical" alliance. For two generations, the research and development laboratories of our pharmaceutical companies have been laboring under increasing difficulty to provide us with all kinds of effective new drugs. We have so much more with which to fight plague and pestilence than did our predecessors who were limited to aspirin, quinine, and iodine. Our system, or non-system, has been the envy of the world; our hospitals, our medical schools, our graduate training programs have been sought out by the students of the world. Our pharmaceutical companies have spent billions of dollars on research to make and keep us "number one." Of course, as our major pharmaceutical houses are reduced to "me too" manufacturers of generic products our patients will suffer from undiscovered new drugs. As our hospitals are decimated by the DRG (Diabolic Rationing of Geriatrics) plan, it appears that our graduate training programs will likely be reduced in quantity and quality to third-rate status. I would like to tell future patients to prepare for thirdrate care, but how can I do so?

When the new Congress convenes its Pirates for its next session, I would be thrilled if they could see the wisdom of legislating an American Citizens Protective Agency to try to save us from further depradations. Such an agency could be patterned on the Environmental Protection Agency. In fact, it might kill two birds with one stone if the EPA were converted, lockstock-and barrel, to a Citizens Protection Agency. Foolish thought! I have been taught that heaven does not, and never will, exist on earth. But do the Pirates have to work so hard to create hell on earth?-L. A. Arata, M.D., Shelbyville, Ind.

NEWS NOTES

Harvard Developing New Medical Curriculum

The Hewlett-Packard Company is supporting the development of an innovative curriculum at Harvard Medical School.

A five-year, \$5 million grant of cash and equipment from HP is in support of Harvard's New Pathway program, a comprehensive plan for restructuring general medical education.

The plan calls for radical shifts in teaching technique: a reduction in time spent in large group lectures; an emphasis on problem-solving and independent study; and a broadening of subject matter to include cost containment, statistics, disease prevention and health promotion, patient psychology, communication skills, and the effective use of computers and information-management techniques.

Dr. Gillespie Honored

Dr. Charles F. Gillespie of Indianapolis was honored at a recognition dinner in October. About 75 guests paid tribute to him for his contributions to the I.U.S.M. Dept. of OB/GYN, the I.U. Medical Center, the community and the American College of Obstetricians and Gynecologists.

Dr. Gillespie was presented the traditional Indiana University chair from the Dept. of OB/GYN. He also received a bronze plaque from Dr. Glenn Irwin Jr., vice-president, I.U.-Indianapolis, which reads, "In appreciation and recognition of continued loyalty, dedicated service and inspiring guidance to the community, university, patients and students."

Dental Anesthesia

152

"Anesthesia and Sedation in the Dental Office" will be the topic of an NIH Consensus Development Conference to be conducted April 22-24 at the Magnuson Clinical Center in Bethesda, Md. The conference is sponsored by the National Institute of Dental Research, the FDA and the NIH Office of Medical Applications of Research.



JACKIE SCHILLING is flanked by Mr. Al Cushing, Marion Laboratories (left), and Dr. Robert Mouser, immediate past president, IAFP.—PHOTO COURTESY OF AAFP REPORTER

Jackie Schilling Wins Outstanding Service Award

Jackie Schilling, executive vicepresident of the Indiana Chapter, American Academy of Family Physicians, has received Marion Laboratories' Outstanding Service Award.

Mrs. Schilling, formerly employed by the Indiana State Medical Association, has been associated with the Indiana Chapter of the AAFP since 1963.

The Outstanding Service Award recognizes her work in organizing the chapter-sponsored Family Practice Club of Indiana, which was the first such organization in the United States. The club, formed 20 years ago, served as the example and stimulus for the formation of 35 such clubs around the nation, all of which are highly successful.

Membership in the Indiana club consists of members of the four classes of the I.U. School of Medicine. Six meetings are conducted each year, each featuring guest speakers and panel discussions about family practice.

At the Indiana club's urging, AAFP members recently voted to include student representation on their board of directors, congress of delegates, commissions and committees.

Marion Laboratories, which supports the club's administrative and financial services, participated in the ceremony in the person of Marion's Al Cushing.

For the Asking . . .

- "Interventions in Acute Myocardial Infarction" is a documentary medical film now available from Smith Kline & French Health Media Center. The film, the second in the SK&F Cardiology Film Library, surveys the range of available intervention techniques and chronicles the clinical events and decisions of the first 24 hours from the onset of an acute MI. "Perfusion and Function" was the first cardiology film produced. Either or both may be obtained, free of charge, for viewing by groups of cardiologists numbering 20 or more. Both films are on 16mm film, 3/4" U-matic, VHS and Beta II. Contact the Center, c/o RHR Filmedia, 49 W. 37th St., New York, N.Y. 10018 – (800) 223-2342.
- Philips Ultrasound is offering a new SDR 1200 brochure which describes a high-resolution system featuring B-mode, M-mode and B/M-mode imaging for obstetrics, gynecological, abdominal, intraoperative and urological examinations. For copies write Philips Medical System, 2722 S. Fairview St., Santa Ana, Calif. 92704.
- The National Institute on Aging has published "The Menopause Time of Life." Single copies are available free by sending a postcard to Expand Associates/MENO, 7923 Eastern Ave., Suite 400, Silver Springs, Md. 20910.
- A free catalog listing 375 medical and health-related films, videotapes, slide/tapes, and interactive videodiscs from the 1984 John Muir Medical Film Festival is available. Entries are divided into 57 categories, such as Internal Medicine, Nursing Techniques, and Fitness. Forty category winners and 42 honorable mentions are indicated. For a copy, send \$1 (postage and handling) to John Muir Medical Film Festival, 1601 Ygnacio Valley Road, Walnut Creek, Calif. 94598.
- "AMA Food and Nutrition Sets" is a packet of five pamphlets containing basic nutrition information for patients. The price is \$1.50 per set for 50 or more sets. Single sets are \$3 each. AMA members receive a 10% discount. Contact the AMA Order Dept., AMA headquarters, Chicago 60610.

Here and There . . .

Dr. David K. Johnloz and Dr. Louise Owens, Bloomington gastroenterologists, discussed "Functional Bowel Disorder" during a December public lecture series sponsored by Bloomington Hospital.

Dr. Alfred T. Chappel of Franklin has been re-elected chief of the medical staff at Johnson County Memorial Hospital; Dr. Peggy L. Kovach was elected secretary.

Dr. Henry Fisher, a Marion family physician for 47 years, has retired from practice.

Dr. W. G. Magbag, a Holland (Dubois County) family physician, has retired from practice.

Dr. Carl M. Porter, a Jasonville (Greene County) family physician, has retired after practicing 52 years.

Dr. Bruce II. Bender is the new president of the medical staff at St. Francis Hospital Center, Beech Grove; Dr. Martin T. Feeney is vice-president and president-elect, and Dr. James D. Rogge is secretary-treasurer.

Dr. Dean D. Maglinte of Indianapolis served on the faculty of the 14th annual meeting and postgraduate course of the Society of Gastrointestinal Radiologists, held this fall in California. He held a workshop on "Problems in Small Bowel Radiography" and presented a paper he co-authored, "Fold Patterns in Celiac Disease."

Dr. John F. Moe of Indianapolis discussed high blood pressure during a November public meeting on preventive medicine called "Stayin' Alive!"

Dr. Jane M. Irmscher, Fort Wayne-Allen County health commissioner, has been elected president of the Indiana Association of Public Health Physicians.

Dr. Gerry M. Hippensteel of Vincennes discussed pancreatic cancer at the November meeting of Families Facing Cancer.

Newly named fellows of the American Academy of Family Physicians are Dr. Owen A. Batterton of Bloomfield, Dr. William II. Hathaway of Auburn, and Dr. Gary L. Sheeler, also of Auburn.

Dr. Daniel W. Kletzing of South Bend discussed laryngectomy patients, from referral through recovery, during a November public meeting.

Dr. William R. Lynch of Indianapolis has been certified by the American Board of Emergency Medicine.

Dr. Robert C. Kaye of Rensselaer, an avid jogger, discussed the effects of exercise on the cardiovascular system during a November meeting sponsored by the RUNsselaer Athletic Club and Jasper County Hospital.

Dr. Betty J. Dukes of Dugger has received a special board of directors award from the Hamilton Mental Health Center.

Dr. Howard A. Pope of New Albany, a colonel in the Army Reserves, has assumed command of the 5010th U.S. Army Hospital in Louisville; he succeeded Dr. Joseph A. Bruckman of New Albany, also an Army Reserve colonel.

Dr. lan II. Cook of Fort Wayne has been elected to fellowship in the American College of Surgeons.

Dr. Richard S. Witham of Martinsville discussed cancer detection at a November meeting of the Early Edition Kiwanis Club.

Dr. Donald A. Dian, a Caylor-Nickel Medical Center pediatrician, discussed child abuse during a Huntington seminar in November.

Dr. Thomas G. Gaylord of Martinsville discussed home vs. hospital deliveries during a December community education program sponsored by Morgan County Memorial Hospital.

Dr. Frank J. Amodio of Evansville discussed childhood allergies during a December meeting of Parents Helping Parents.

Dr. Dennis C. Stepro of Richmond has been certified by the American Board of Orthopaedic Surgery.

Dr. Jerome F. Doss of Kokomo is the new chief of the medical staff at Howard Community Hospital; Dr. Willis W. Peelle is the new vice-chief.

Dr. Ronald K. Andrews of Greenfield has been appointed chief medical diving officer for the Marion County Sheriff's Department; he also heads the Indiana State Police Scuba Rescue Team.

Dr. John E. Read of Chesterton has co-authored a book called *Primary Ophthalmology*, published by Grune and Stratton, New York.

Dr. Mohsen Ehsan of New Albany

discussed the diagnosis and treatment of lupus during a public lecture in November.

Dr. Joseph E. Jackson of Zionsville has been named a diplomate of the American Board of Family Practice.

Dr. J. Thomas Benson of Indianapolis has been elected Fifth District director of the Gynecology Urology Society. (The Fifth District comprises Michigan, Indiana, Kentucky, Ohio and Ontario.) The society is interested in establishing professional relationships with international gynecology urology societies and with the American Urologic Association.

Dr. James M. Lawrence is the new president of the medical staff at St. Vincent Hospital, Indianapolis; Dr. Walter W. Jolly is vice-president and president-elect, and Dr. David J. Kenley is secretary-treasurer.

Court Rules Against Malpractice Attorney

A trial court properly ordered sanctions against three malpractice plaintiffs' attorney because he failed to comply with discovery orders, an Indiana appellate court has ruled.

The attorney had three malpractice complaints with the Commissioner of Insurance under the Medical Malpractice Act. Counsel for the physicians being sued served interrogatories of each of the three patients. The attorney refused to respond to the interrogatories because his interpretation of the Act was that only depositions could be submitted to the medical review panel. He later failed to show up for scheduled depositions.

The physicians moved for the imposition of sanctions. The court found that the attorney's acts were done in bad faith and in abuse of the rules of discovery and imposed attorney's fees of \$300 in each of the three cases against him.

On appeal, the decision was affirmed. The attorney acted without consulting his clients in deciding to resist the discovery requested. Moreover, when he finally answered the interrogatories, his answers were incomplete

CONTINUED ON NEXT PAGE

NEWS NOTES

New ISMA Members

The following physicians were welcomed in November as new members of the Indiana State Medical Association:

Larry R. Brazley, M.D., Gary, rheumatology.

Richard A. Butler, M.D., Terre Haute, family practice.

Robert E. Clemency, Jr., M.D., South Bend, orthopedic surgery.

Neal D. Clemenson, M.D., Lafayette, family practice.

Thomas F. Downey, M.D., Lafayette, obstetrics and gynecology.

Diana S. Ebling, M.D., Spencer, family practice.

Linda G. Emery, M.D., Lafayette, pediatrics.

Greg Gooden, M.D., Lafayette, cardiovascular diseases.

Thomas L. Hauch, M.D., South Bend, ophthalmology.

John Herling, M.D., Fort Wayne, family practice.

Beatrice M. Hernandez, M.D., LaPorte, hematology.

Gregory K. Hindahl, M.D., Evansville, family practice.

James A. Hohman, M.D., Evansville, general surgery.

Pearl D. Johnson, M.D., East Chicago, family practice.

Mark C. Jones, M.D., Evansville, neurology.

Court Rules Against . . .

CONTINUED FROM PRECEDING PAGE

and evasive. The court said that was sufficient evidence of bad faith. The court modified the award of attorney's fees to name both the physicians and their insurance companies as recipients of the \$300.

One patient challenged summary judgment entered against her on the basis of the statute of limitations. The court ruled that she admitted that she knew more than two years before she filed suit that her physician failed to remove all packing from her vagina. Summary judgment was proper, the court said.—*Hepp v. Pierce*, 460 N.E.2d 186 (Ind.Ct. of App., Feb. 27, 1984)

Victor F. Jones II, M.D., South Bend, radiology.

William R. Kelley Jr., M.D., Valparaiso, radiology.

Anil K. Kothari, M.D., Valparaiso, radiology.



Cyrill M. Llaneta, M.D., Gary, family practice.

Paul C. McCormick, M.D., Indianapolis, anesthesiology.

Rebecca E. Moskwinski, M.D., South Bend, family practice.

Vikram M. Patel, M.D., Jefferson-ville, psychiatry.

James Perruguet, M.D., Lafayette, rheumatology.

David C. Rau, M.D., Columbus, family practice.

Jose L. Romero, M.D., Anderson, anesthesiology.

Michael J. Roselman, M.D., Evansville, cardiovascular diseases.

D. Bruce Shelton, M.D., Evansville, pediatrics.

Joel R. Wachs, M.D., South Bend, cardiovascular diseases.

Pieter Wiersema, M.D., Crawfordsville, internal medicine.

IPRO: What, Who Is It?

The Indiana Peer Review Organization (IPRO), representing more than 1,700 Indiana physicians, is now almost six months old and functioning smoothly, according to Mr. Tom Hanstrom, executive vice-president of the Carmel-based corporation.

IPRO won a two-year contract last summer from the Health Care Financing Administration to perform the peer review functions in Indiana that are required by federal law. As a result of TEFRA legislation and Social Security amendments passed by Congress, certain diagnoses and procedures for Medicare patients require hospital preadmission and follow-up certification.

In a nutshell, that's the function of the IPRO, says Dr. Paul Muller of Indianapolis, chairman of the board. The IPRO, he explained, is charged with reducing the number of Medicare admissions in Indiana by 5% of the 1983 level. Dr. Mueller emphasizes, however, that no decision that interferes with the delivery of quality medicine will be made.

Criteria for pre-admission review have been developed. This was accomplished by IPRO physicians through consultation with physicians named for their expertise by their state specialty group.

IPRO headquarters is at 11550 N. Meridian St., Tower One, Suite 540, Carmel, Ind. 46032—(317) 844-4777.

To provide coverage across the state, IPRO has sub-contracted with the Indiana Medical Review Organization in Terre Haute and the Indiana Foundation of Medical Care in Fort Wayne for peer review in the southern third and northern third of Indiana, respectively.

Members of the IPRO board of directors are:

Wallace M. Adye, M.D., Evansville; Paul F. Benedict, M.D., Indianapolis; Bruce Brink Jr., D.O., Indiana Osteopathic Assn.;

Fouad A. Halaby, M.D., Fort Wayne; Paul F. Muller, M.D., Indianapolis, chairman;

Vincent J. Santare, M.D., Munster; Mark S. Souder, M.D., Auburn; and William L. Strecker, M.D., Terre Haute.



CARDIOLOGY DIAGNOSTIC AND INTERVENTIONAL

WILLIAM K. NASSER, M.D.

MICHAEL L. SMITH, M.D. DENNIS K. DICKOS, M.D.

CASS A. PINKERTON, M.D.

JOHN D. SLACK, M.D.

JAMES W. VAN TASSEL, M.D. CHARLES M. ORR, M.D.

JANE HOWARD, M.D.

CARDIOLOGY AND CARDIAC CATHETERIZATION **ECHOCARDIOGRAPHY** EXERCISE STRESS TESTING CORONARY ANGIOPLASTY NUCLEAR CARDIOLOGY PACEMAKER SURVEILLANCE HOLTER MONITORING

ST. VINCENT PROFESSIONAL BUILDING

SUITE 413 8402 HARCOURT ROAD INDIANAPOLIS, INDIANA 46260

PHYSICIAN REFERRAL ONLY TELEPHONE (317) 875-9316 (TOLL-FREE) 800-732-1482 DAY OR NIGHT

PLASTIC SURGERY

ALCOHOLISM TREATMENT

PLASTIC & HAND SURGERY CLINIC, INC.
1944 N. Capitol Ave. Indianapolis 46202
"An office surgery facility"

HAROON M. QAZI, M.D., F.A.C.S. Diplomate, American Board of Plastic Surgery

Phone: 317-923-4822 317-926-3466

PSYCHIATRY

Davis Psychiatric Clinic, Inc.

1431 North Delaware Street Indianapolis, Indiana 46202 317/634-9930

James R. Davis, M.D.

R. Peter Mohlman, M.D.

Larry M. Davis, M.D.

George McAfee, M.D.

Comprehensive Child, Adolescent, Adult Psychiatry Sexual Therapy, Crisis Intervention Alcohol and Substance Abuse JOHN J. SAALWAECHTER, M.D.
BEN H. PARK, M.D.
RITCHIE COONS, M.D.
DAVID L. PHILLIPS, M.D.
MICHAEL J. CHADWICK, M.D.
DAVID L. GREGORY, M.D.
JAMES R. DAVIS, M.D.
LARRY M. DAVIS, M.D.
Individualized Treatment
for Alcoholism/Drugs

Men - Women - Adolescents



1711 Lafayette Avenue Lebanon, Indiana 46052 (317) 482-3711

2223 Poshard Drive Columbus, Indiana 47202 (812) 376-1711

8925 N. Meridian St. Indianapolis, Indiana 46260 (317) 848-7666

4333 E. Third St. Bloomington, Indiana 47401 (812) 333-3012

428 S. Washington St. Suite 347 Marion, Indiana 46952 (317) 668-7067

OPHTHALMOLOGY

George E. Waters, Jr., M.D.

Diplomate, American Board of Ophthalmology

Diseases and Surgery of the Eye 9100 Meridian Square

50 Last 91st Street

Indianapolis, Indiana 46240

317-844-6180

Douglas Bullington, M.D.

Program Director



COUNTERPOINT CENTER

at Valle Vista Hospital 898 E. Main Street Greenwood, IN 46142 317/887-1348

- Free evaluation and intervention
- Adult & Adolescent Treatment Services
- 24 hours-a-day

CARDIOLOGY

INDIANAPOLIS CARDIOLOGY ASSOCIATES, INC.

Robert E. Edmands, M.D. Samuel M. Hazlett III, M.D.

Abdel A. Zeni, M.D.
Don B. Ziperman, M.D., F.A.C.C.

CARDIOLOGY AND CARDIAC CATHETERIZATION
ECHOCARDIOGRAPHY
EXERCISE STRESS TESTING
CORONARY ANGIOPLASTY
PACEMAKER SURVEILLANCE
HOLTER MONITORING

1315 North Arlington Avenue Suite #100 Indianapolis, Indiana 46219 (317) 359-3501

PHYSICIAN REFERRAL ONLY

1500 Albany Street Suite #912 Beech Grove, Indiana 46107 (317) 786-9211

PERIPHERAL VASCULAR SURGERY

AUSTIN L. GARDNER, M. D., F.A.C.S.
MALCOLM B. HERRING, M. D., F.A.C.S.
DANIEL R. LEGRAND, M.D.
DAVID L. MADISON, M.D.

GENERAL VASCULAR SURGERY

8402 HARCOURT ROAD, SUITE 613

INDIANAPOLIS, INDIANA 46260
OFFICE HOURS BY APPOINTMENT
TELEPHONE (317) 872-4129
OR
800-662-5367

COLON AND RECTAL SURGERY

W. M. KENDRICK, M.D. G. A. DONNALLY, M.D. R. JAMES WILSON, M.D. W. E. KELLEY, M.D.

Certified: International Board of Proctology

Practice limited to Colonscopy, Treatment and Surgery of Rectal Diseases

Kendrick Memorial Hospital, Inc. Mooresville, Indiana Tel: 317-831-9300

(JCAH Accredited)

INTERNAL MEDICINE

CLINICAL, ANATOMIC PATHOLOGY

NEPHROLOGY & INTERNAL MEDICINE, INC.

Thomas Wm. Alley, M.D., FACP George W. Applegate, M.D. Charles B. Carter, M.D. William H. Dick, M.D., FACP

Theodore F. Hegeman, M.D. Douglas F. Johnstone, M.D. Wendy L. Kindig, M.D. LeRoy H. King, Jr., M.D., FACP Mary A. Margolis, M.D.

1633 N. Capitol, #722, Indianapolis 46202 Ph: 317-926-0757

By Physician Referral

Answering Service 926-3466

CLINICAL NEPHROLOGY, RENAL TRANSPLANTATION, HEMO-DIALYSIS, PERITONEAL DIALYSIS, HYPERTENSION, FLUID AND ELECTROLYTE IMBALANCE, CRITICAL CARE.

MERIDIAN MEDICAL GROUP, INC.

3130 North Meridian Street P. O. Box 88273 Indianapolis, Indiana 46208 (317) 927-1221

CARDIOLOGY

Richard M. Nav. M.D. Warrer E Coopesha M.C. 327-1217 Douglas H. White, Jr. M.D. Richard R. Schilmacher, M.D. 927-1247 Martin R See M D 927-1299 Michae B DuBois, M D

GASTROENTEROLOGY

Robert D. Pickett, M.D. 997-1242

HEMATOLOGY ONCOLOGY

Frank A. Workman, M.D. 927-1269

INFECTIOUS DISEASES

· ···· '= Sama M.D. 8424 Naab Road

PULMONARY DISEASES

INTERNAL MEDICINE

#27-1212 Hunter A Soper M.D. 927-1253

METABOLISM & **ENDOCRINOLOGY**

William Miller and Miller

NEUROLOGY EEG & EMG LAB

Norman W. Oestrike M.D. 1917-1354 Charles E Renn M D John R Scott M D Bradford R Haie M D Robert J. Alonso. M.D.



The Medical Laboratory

of Drs. Thornton - Haymond - Costin- Buehl Bolinger - Warner - McGovern - McClure - Hooker

5940 West Raymond Street, Indianapolis, Indiana 46241

Phone: (317) 248-2448

COMPLETE LABORATORY SERVICES

Serving Indiana Since 1947

- MICROBIOLOGY
- SEROLOGY
- CHEMISTRY
- SURGICAL PATHOLOGY
- HEMATOLOGY
- COAGULATION
- FORENSIC
- CYTOLOGY
- FKG
- VETERINARY PATHOLOGY
- TOXICOLOGY
- · COURIER SERVICES



CLINICAL AND ANATOMIC PATHOLOGY

Central Testing Facility: 5940 W. Raymond St. For information and details phone 248-2448

RHINOLOGY

By appointment only

317-359-9636

CARL B. SPUTH, M.D.

Diseases & Surgery of Nose & Sinuses Plastic Surgery of the Nose Nasal Allergy, Rhinomanometry

5506 E. 16th St.

Indianapolis 46218

OTOLOGY

MERIDIAN OTOLOGY LAB

Is Pleased to Announce the Opening of our New Office Providing

*Complete Audiometric Evaluations

*Hearing Aid Evaluations and Dispensing

*Brainstem Auditory Evoked Response

*Visual Evoked Response

*Electronystagmography

Richard Kurtz, M.D. Jack Summerlin, M.D. Kathleen Corbin, M.A., CCC-A Audiologist

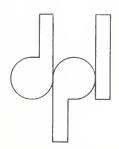
3266 N. Meridian Street Indianapolis, Indiana Suite B12 (317) 925-7077

DERMATOPATHOLOGY

DERMATOPATHOLOGY LABORATORY

Larry J. Buckel, M.D. Robert M. Hurwitz, M.D.

Howard R. Gray, M.D. William B. Moores, M.D.



Diplomates of the American Board of
Dermatology and Dermatopathology

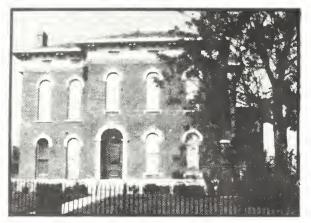
Specializing in
Inflammatory Skin Diseases
and
Neoplasms of the Skin

9202 North Meridian Street Suite 215 Indianapolis, Ind. 46260 (317) 843-2204

Mailers and Courier Service Available

ONCOLOGY—HEMATOLOGY

INDIANA ONCOLOGY-HEMATOLOGY CONSULTANTS



Byram Gates Middleton House, listed on the National Register of Historic Places 1828 North Illinois Street Indianapolis, Indiana 46202

ADULT ONCOLOGY - HEMATOLOGY

Laurence H. Bates, M.D.,

William M. Dugan, Jr., M.D.,

Redmond P. Hogan, III, M.D.,

Gregory W. Smith, M.D.

PEDIATRIC ONCOLOGY — HEMATOLOGY

Deborah S. Provisor, M.D.

Are pleased to announce the association of

NEIL E. IRICK, M.D.
INTERNAL MEDICINE/HOSPICE CARE

Telephone 317-927-5770 24 hours TOLL FREE: 1-800-ONC-HEME (662-4363)

Attention Indiana Physicians

The *Physicians Directory* is the most ethical and professional method of announcing specialty practice. It is also the most effective medium for listing office location, office hours, and telephone number for the convenience of colleagues in referring patients

The title of diplomate of a specialty examining board, a requirement for admission to the *Directory*, offers its assurance of qualifications, whether listed or not.

Family physicians may announce office schedules that are reciprocally staggered in order to provide access to evening and weekend and holiday medical service.

In addition to providing benefits to physicians, the *Directory* is a practical means of providing financial support for INDIANA MEDICINE.

All diplomates of the ISMA are invited to enter a professional card in the *Directory*.

"The Impact of Injury on Sport and Exercise"

Sponsored by

American Alliance for Health, Physical Education, Recreation and Dance American College of Sports Medicine American Orthopaedic Society for Sports Medicine

National Athletic Trainers Association President's Council on Physical Fitness and Sports

United States Olympic Committee

The 1985 Sports Medicine Congress and Exposition August 6 through 10, 1985 The Indiana Convention Center and Hoosier Dome Indianapolis, Indiana

- The endorsement and support of 40 sports medicine organizations with a combined membership of over 800,000.
- More than 40 state-of-the-art presentations by the best and most respected professionals in the field of sports medicine.
- The most complete showcase ever assembled of products and services for the sports medicine professional.
- One of the largest inter-disciplinary sports medicine audiences ever convened.

A unique opportunity to participate in a world class event!



(Please print in capital letters.)	NAME
	ADDRESS LINE #1
AD	DRESS LINE # 2 (If needed)
CITY	STATE ZIP CODE
ISMA	DATE OF BIRTH Day Year

Return to Sports Medicine Congress, Inc., 7034 W. North Ave., Chicago, IL 60635

OBITUARIES

Maurice E. Glock, M.D.

Dr. Glock, 74, a former Fort Wayne internist, died Dec. 9 in Avon Park, Fla.

He was a 1934 graduate of Indiana University School of Medicine and was an Army veteran of World War II.

Dr. Glock, who practiced in Fort Wayne until 1976, was a former ISMA trustee and president, and a former Fort Wayne-Allen County Medical Society president. He was a member of the American Society of Internal Medicine and last year became a member of the ISMA Fifty Year Club.

Roscoe E. Miller, M.D.

Dr. Miller, 66, a distinguished professor of radiology at the Indiana University School of Medicine since 1976, died Dec. 14 at his home.

He was a 1951 graduate of Indiana University School of Medicine and was an Army veteran of World War II.

Dr. Miller, a lecturer and author of more than 200 articles and six textbooks on radiology, was a practicing specialist at Indiana University and Wishard Memorial Hospitals and the Roudebush VA Medical Center. In 1980 he received the Walter B. Cannon Medal from the Society of Gastrointestinal Radiologists for his development of innovative techniques to provide a more accurate diagnosis of cancer in the GI tract.

His professional affiliations included



the American College of Radiology, American Roentgen Ray Society, Radiological Society of North America, and the Indiana Roentgen Society.

C. David Ryan, M.D.

Dr. Ryan, 48, a Columbus physician, died Dec. 14 at his home.

He was a 1962 graduate of Indiana University School of Medicine.

Dr. Ryan was chief of staff of obstetrics and gynecology at Bartholomew County Hospital at the time of death. He was a former ISMA delegate and was a fellow of the American College of Obstetricians and Gynecologists.

Frank M. Brown, M.D.

Dr. Brown, 64, a retired Indianapolis physician, died Dec. 7 at Winona Memorial Hospital.

He was a 1954 graduate of Howard University College of Medicine and was an Army veteran of World War II.

Dr. Brown retired last year. During the Thirties and Forties he had gained a reputation as one of the top jazz drummers in the Midwest.

Sylvia Cheng, M.D.

Dr. Cheng, 66, a retired Logansport psychiatrist, died Nov. 28 at Memorial Hospital, Logansport.

She was a 1942 graduate of Women's Christian Medical College, Shanghai.

Dr. Cheng was a former staff member of Logansport State Hospital. She and her husband, Dr. Johnson Chu, survives, operated Southeastern Medical Center in Walton. She was listed in Who's Who of American Women and Who's Who in the Midwest.

Lloyd A. Vogel, M.D.

Dr. Vogel, 57, a Fort Wayne physician, died Nov. 19 at Lutheran Hospital.

He was a 1953 graduate of Indiana University School of Medicine.

Dr. Vogel was a former chief of staff at Lutheran Hospital and was head of the emergency room there for 12 years. He was a member of the American College of Emergency Physicians.

Memorials: Indiana Medical Foundation

The Indiana Medical Foundation, Inc. was formed by the Indiana State Medical Association "for religious, charitable, scientific, literary or educational purposes." It provides financial assistance to support the educational mission of Indiana Medicine.

Contribution made to the Foundation are deductible by donors in accordance with the Internal Revenue Code. Gifts are deductible for Federal estate and gift tax purposes.

The Foundations is pleased to acknowledge the receipt of gifts in remembrance of the following individuals:

> Sam W. Litzenberger, M.D. Eli Goodman, M.D. Wemple Dodds, M.D. Edwin W. Dyar, M.D. Maurice E. Glock, M.D.

Guy A. Owsley, M.D. Wilbert Smith Eugene S. Rifner, M.D. Elsie A. Reid Lester D. Bibler, M.D.

Harold E. Miller, M.D.

Dr. Miller, 74, a retired Seymour physician, died Nov. 30 at his home.

He was a 1935 graduate of Indiana University School of Medicine.

Dr. Miller was an honorary lifetime staff member of Jackson County Hospital, Seymour. He was a former secretary of the Jackson County Medical Society.

THE INDIANA STATE MEDICAL ASSOCIATION

OFFICERS

President-Lawrence E. Allen, Anderson Pres-elect—Paul Siebenmorgen, Terre Haute Immed Past Pres-George T. Lukemeyer, Indpls Executive Director—Donald F. Foy, Indpls Treasurer—George 11. Rawls, Indpls Asst Treas-Max Wesemann, Franklin Speaker-Shirley T. Khalouf, Marion Vice Speaker-Ered W. Dahling, New Haven

EXECUTIVE COMMITTEE

*Lawrence E. Allen, Anderson Paul Siebenmorgen, Terre Haute George T. Lukemeyer, Indpls George H. Rawls, Indpls Max Wesemann, Franklin Shirley T. Khalouf, Marion Fred W. Dahling, New Haven John D. MacDougall, Beech Grove Davis W. Ellis, Rushville Mark M. Bevers, Seymour

TRUSTEES (Terms end in October) District

1-E. DeVerre Gourieux, Evansville (1986)

2-Ralph W. Stewart, Vincennes (1987)

3-Richard G. Huber, Bedford (1985)

4-Mark M. Bevers, Seymour (1986)

5-Benny Ko, Terre Haute (1987)

6-Davis W. Ellis, Rushville (1985)

*7-John D. MacDougall, Beech Grove (1986)

7—William H. Beeson, Indianapolis (1987)

8-William C. VanNess II, Summitville (1987)

9-Max N. Hoffman, Covington (1985)

10-Charles D. Egnatz, Schererville (1986)

11—Edward E. Langston, Elora (1987)

12-Michael O. Mellinger, LaGrange (1985)

13—John W. Luce, Michigan City (1986)

*Chairman

rs.

181

ALTERNATE TRUSTEES (Terms end in October)

1—Wallace M. Adye, Evansville (1985) 2—Paul J. Wenzler, Bloomington (1986)

3-Thomas A. Neathamer, Jeffersonville (1986) 4-William E. Cooper, Columbus (1985)

5-Fred E. Haggerty, Greencastle (1985)

6-Clarence G. Clarkson, Richmond (1986)

7—Donna J. Meade, Indianapolis (1985)

7-Garry E. Bolinger, Indianapolis (1985)

8—Douglas A. Triplett, Muncie (1985)

9-R. Adrian Lanning, Noblesville (1986)

10-Walfred A. Nelson, Gary (1985)

11-Jack W. Higgins, Kokomo (1986)

12-Thomas A. Felger, Fort Wayne (1986)

13-Steven M. Yoder, Goshen (1985)

AMA DELEGATES (Terms end Dec. 31)

Marvin E. Priddy, Fort Wayne (1985) Peter R. Petrich, Attica (1985) Thomas C. Tyrrell, Hammond (1985) Everett E. Bickers, FLoyds Knobs (1986) Malcolm O. Scamahorn, Pittsboro (1986) Gilbert M. Wilhelmus, Evansville (1986)

AMA ALT. DELEGATES (Terms end Dec. 31)

Martin J. O'Neill, Valparaiso (1985) Arvine G. Popplewell, Indianapolis (1985) Vincent J. Santare, Munster (1985) Alvin J. Haley, Carmel (1986) John A. Knote, Lafavette (1986) Robert M. Seibel, Nashville (1986)

DISTRICT OFFICERS AND MLETINGS

I-Pres: Donald R. Elder, Evansville Secy: Gary I Beck, Evansville Annual Meeting, May 16, 1985, I vansville -Pres: William D. Cutshall, Bloomington

Secy: Dwight E. Stauffer, Bloomington Annual Meeting: August 1985, Bloomington

3-Pres. Walface tohnson, Bedford Secy: Richard G. Huber, Bedford

Annual Meeting: May 10-12, 1985, Mitchell 4-Pres: William F. Cooper, Columbus Secy: Kenneth D. Schneider, Columbus Annual Meeting: May 8, 1985, Columbus

5-Pres: Michael S. McCrea, Terre Haute Secy: Peggy Sankey Swaim, Rockville Annual Meeting: Sept. 1985, Brazil

6-Pres: Dean Felker, Greenfield Seey: Douglas Morrell, Rushville

Annual Meeting: May 1985, Rushville 7—Pres: Donald J. Kerner, Indianapolis Secy: Marshall H. Trusler, Indianapolis Annual Meeting: 1985, Indianapolis

8-Pres: Charles W. Bartholome, Muncie Secy: Stephen R. Miller, Muncie Annual Meeting: June 5, 1985, Muncie

9-Pres: James Balvich, Monticello Secy: David A. Shapiro, Monticello Annual Meeting: June 12, 1985, Monticello

10-Pres: Robert J. Bills, Merrillville Secy: Barron M. Palmer, Hammond Annual Meeting: 1985

11-Pres: Michael A. Shirley, Kokomo Secy: Fred Poehler, LaFontaine Annual Meeting: Sept. 18, 1985, Kokomo

12-Pres: Antonio B. Donesa, Fort Wayne Seey: Mark S. Souder, Auburn Annual Meeting: Sept. 19, 1985, Fort Wayne

13-Pres: Ben Ticsay, Michigan City Secy: Michael Thomas, Elkhart Annual Meeting: Sept. 11, 1985, Michigan City

COMMISSION CHAIRMEN

Constitution & Bylaws Hoyd L. Hill, Peru Legislation Edward L. Langston, Flora Physician Impairment Larry M. Davis, Indianapolis

Public Relations

R. Adrian Lanning, Noblesville Medical Services

Michael O. Mellinger, LaGrange Convention Arrangements

lames L. Grainger, South Bend Medical Education

Frankfin A. Bryan, Fort Wayne Sports Medicine

Gary Prah, Lafayette

Ronald G. Blankenbaker, Indianapolis

COMMITTEE CHAIRMEN

Negotiations Herbert C. Khalouf, Marion Medical Education Fund

John W. Beeler, Indianapolis Grievance

G. Beach Gattman, Elkhart Future Planning

W.C. Van Ness II, Alexandria Medico-Legal John W. Beeler, Indianapolis

Indiana Medical Foundation Frank B. Ramsey, Indianapolis

Reduce Drunk Driving Michael DuBois, Indianapolis Genatrics

Bill Martz, Brownsburg

SECTION OFFICERS

ALLERGY Chmn:

Chmn:
Seey:
ANESTHESIOLOGY
Chmn: Steven R. Young, Catmel
Seey: Donald L. Weninger, Michigan City
CULANI-OUS MEDICINI
Chmn: Alan Gilbert, Fort Wayne
Seey: Donald Smith, South Bend
DIRE-CIORS OF MI-DICAL EDUCATION
Chmn: Robert B. Chevaher, Beech Grove
Seey: Thomas P. Duntee, South Bend
EMERGENCY MEDICINI
Chmn: John C. Johnson, Crown Point
Seey: Clark McClure, Valparaiso
FAMILTY PRACTICE
Chmn: Bernard J. Emkes, Indianapolis
Seey: William C. Spence, Kinghtstown
INTERNAL MEDICINE
Chmn: Ramon S. Dunkin, Indianapolis

INTERNAL MEDICINE
Chimis Ramon S. Dunkin, Indianapohs
Secy: Robert L. Rudesill, Indianapohs
MEDICAL DIRECTORS & STAIL PHYSICIANS
OF NURSING FACILITIES
Climis Hugh K. Thatcher, Indianapolis
Secy: Ivan L. Lindgren, Aurora
NELLIKOLOGY

NEUROLOGY.

Chmn. Charles A. Bonsett, Indianapolis (Pro-Tem) NEUROLOGICAL SURGERY

NEUROI OGICAL SURGERY
Chmn: Damel F. Cooper, Indianapolis
Secy: Marvin R. Bernard, Merrillville
NUCLEAR MEDICINL
Chmn: Glenn B. Mather, Bloomington
Secy: Miguel B. Dizon, Indianapolis
OBSTETRICS & GYNECOLOGY
Chmn: J. Robert Stanley, Muncie
Secy: William E. Graham, Eort Wayne
OPHTHALMOLOGY
Chmn: Forrest Ellis, Indianapolis

OPHTHALMOLOGY
Chmn: Forrest Ellis, Indianapolis
Secy: Gerald Keener, Indianapolis
ORTHOPAEDIC SURGERY
Chmn: Ben Woodward, Isvansville
Secy: Wade Rademacher, Beech Grove
OTOLARYNGOLOGY, HI-AD & NECK
SURGERY

OTOLARYNGOLOGY, HEAD & NECK SURGERY Chmi: William E. Cooper, Columbus Seey: Richard T. Miyamoto, Indianapolis PATHOLOGY & FORENSIC MEDICINE Chmi: Calvin N. Steussy, New Castle Secy: Arthur C. Jay, Lebanon PEDIATRICS

Chimi: Robert M. Sweeney, South Bend Secy: Kenneth C. Castor, Fort Wayne PREVENTIVE MEDICINE & PUBLIC HEALTH Chim: Joseph D. Richardson, Rochester Secy: Francis B. Warrick, Richmond **PSYCHIATRY**

Chmn: Dwight Schuster, Indianapolis Secy; Cherryl G. Friedman, Noblesville

RADIOI OGY
Chmn: Patrick Dolan, Indianapolis
Secy: Richard L. Pitman, Columbus

SURGERY Chmn: John D. Puleini, Evansville Ted W. Grisell, Indianapolis UROLOGY

Chmn: Seev:

ISMA KEY STAFF PERSONNEL

Donald Foy-Executive Director Kenneth Bush-Asst Exec Director Michael Huntley-Special Assistant Richard King-Attorney Ronald Dyer-Attorney Bob Sullivan - P.R., Insurance John Wilson-Accountant Howard Grindstaff-Field Services Sara Klein-Field Services Mary Alice Cary-Executive Asst., House of

Delegates

Rosanna Her—Membership, Auxiliary Beckett Shady-King—CME, Travel,

Commissions and Committees, House of Delegates



Freotek is a sperm bank providing frozen storage of human semen for the following men:

- Men undergoing chemotherapy or radiation therapy
- Men undergoing prostate or testicular surgery
- 3) Men who are at risk due to their occupation (i.e. exposure to radiation)
- 4) Men who plan vasectomy for sterilization
- Men with low sperm counts who plan to combine specimens for artificial insemination.

Freotek's services also include tests for male infertility designed to help diagnose various anomalies of sperm function as well as tests to possibly improve the quality of sperm which may be used later for artificial insemination.

Business hours 9:00 a.m.-4:00 p.m. Monday thru Friday

Call (502)585-2565 for information or appointments.



COMPLETE
MEDICAL, DIAGNOSTIC & SURGICAL
OPHTHALMIC SERVICES

- Eye Examinations
- Consultations
- Surgery: Cataract, Implant, Glaucoma, Laser, Pediatric, Plastic, Retinal, Corneal and Refractive
- Contact Lenses: Hard, Soft, Gas Permeable
 & Extended Wear
- Visual Fields
- Ocular & Endothelial Photography
- Ultrasonography

Physicians:

David L. Alvis, M.D. Peter H. Cahn, M.D. George A. Clark, M.D. Parvin D. Gilium, M.D. Jack L. Kane, M.D. John E. Mitchelson, M.D. Francis W. Price Jr., M.D. George E. Waters Jr., M.D.

Indiana Eye Associates P.C. 9100 Meridian Square 50 East 91st Street (at North Meridian) Indianapolis, IN 46240 Phone: (317) 848-1348



What do you say when all signs point to ALCOHOLISM OR DRUG ABUSE?

The safe thing to say is Fairbanks Hospital, an accredited medical institution serving Indiana since 1945. Services include inpatient and outpatient care, consultation on your patient by Fairbanks medical staff, professional intervention assistance, proven adolescent as well as adult treatment programs. A phone call to Fairbanks can be The Turning Point for your patient.



FAIRBANKS HOSPITAL

The Turning Point

8102 Clearvista Parkway, Indianapolis, IN 46256 (317) 849-8222

COMMERCIAL ANNOUNCEMENTS.

ADOLESCENT PSYCHIATRIST: Excellent opportunity for board certified/eligible adolescent psychiatrist to establish practice in suburban Indianapolis. Rotate referral coverage for 120-bed psychiatric hospital. For information, write or call Alan Mittermaier, Administrator, CPC Valle Vista Hospital, Box 304, Greenwood, Ind. 46142—(317) 887-1348.

FOR SALE: Xerox Model 2300 used copier in excellent condition for only \$850. Call (317) 872-5159 between 8 and 5.

FOR SALE: Bio-Dynamics Gamma Counter Thyrotek Model 350 with Thyrotek Mixer. Does T4, T3 uptake and T7 in office. Will sell for \$2,000 or best offer. Call (317) 872-5159.

FOR SALE: Bio-Dynamic Hemo-W Counter for WBC and hemoglobin count; one year old, cost \$4,500, will sell for \$3,000 or assume lease of \$175 per month. Call (317) 872-5159 between 8 and 5.

FOR SALE: Central Indiana family practice in a clinical setting. Many charts, gross over \$250,000 for past 3 years. Quiet community near Indianapolis. Contact H. J. Vaughn, Business Manager, 132 Ulen Blvd., Lebanon, Ind. 46052—(317) 873-5095.

EMERGENCY MEDICINE Position Available: Opportunity for experienced Emergency Physician to join professional group practicing in Hobart and Gary, Indiana. Contact Dr. Cornelius Arnold at (312) 747-7115.

FAMILY PRACTICE—Rapidly expanding staff model HMO in Madison, Wisconsin, has opportunities for additional family practice physicians. Competitive salary with excellent benefits and attractive practice setting. GHC is an established, rapidly growing HMO serving 29,000 patients. Current staff totals 180 employees, including 20 physicians. Contact: John Mueller, Group Health Cooperative, 1 South Park St., Madison, Wisconsin 53715—(608) 251-4156.

EMERGENCY MEDICINE Position Available: Opportunity for experienced Emergency Physician to join professional group practicing in northwestern Indiana. Contact Dr. Daniel Philipsborn at (312) 248-5557.

GENERAL/FAMILY PRACTITIONERS—If you are looking for an opportunity to be in the forefront of medical care, practice preventive medicine, work with other innovative professionals, and earn a comfortable living in pleasant surroundings, send your curriculum vitae to Physician Placement Dept-25. An equal opportunity employer. CIGNA Healthplans of California, 700 N. Brand Blvd., Ste 500, Glendale, CA 91203.

VACATION on beautiful Sanibel Island, Florida— Luxury, Gulf-front 2-bedroom, 2-bath condo w/pool, tennis courts and BBQ facilities. Seasonal rates. Contact M. Evans—(312) 361-4742.

RENT LUXURIOUS FLORIDA condominium Hutchinson Island. Two bedroom, two bath. Golf, tennis, pool, private beach. Call Tom Stayton, (317) 636-4535.

MEDICAL DIRECTOR at Muscatatuck State Hospital and Training Center, an 840-bed facility for mentally retarded residents. Located in Jennings County in an attractive rural area about 70 miles from Indianapolis, Louisville and Cincinnati. Must be board eligible in Internal Medicine, Psychiatry or Neurology. Salary negotiable depending on experience and training. Contact William J. Culley, Ph.D., Asst. Superintendent, Muscatatuck State Hospital, Box 77, Butlerville, IN 47223—(812) 346-4401, Ext. 222.

MEDICAL DIRECTOR—Opportunity for physician with experience in medical group practice administration to join established HMO in Madison, Wisconsin. Group Health serves 29,000 patients with its staff of 20 physicians and total staff of 180. Excellent salary and benefit program. This represents a rewarding opportunity to develop or progress your career in medical administration. Contact: John Mueller, Group Health Cooperative, 1 South Park St., Madison, Wisconsin 53715—(608) 251-4156.

MEDICAL DIRECTOR—Immediate opening for full-time Medical Director of a developing community mental health center west of Indianapolis; specialty in psychiatry, Board-eligible, preferably Board-certified, post-residency experience required. Contact John L. Clodfelter, Ph.D., Director, Outpatient Services, Cummins Mental Health Center, P.O. Box 158, Danville, Ind. 46122—(317) 745-5419.

ANESTHESIOLOGIST, BE, available for locum tenans work. Licensed in Indiana and Michigan. Contact W. T. Kirsten, M.D., P.O. Box 542, Lapeer. Michigan 48446—(313) 667-9309.

PHYSICIAN WANTED—Established convenient care facility in midwestern community. Experience in Family Practice or Emergency Medicine. Competitive salary and benefits. Flexible schedule. Reply to INDM, Box 1631, Marion, IN 46952.

Commercial announcements are published as a service to members of the Indiana State Medical Association. Only ads considered to be of advantage to members will be accepted. Advertisements of a truly commercial nature (e.g., firms selling brand products, services, etc.) will be considered for display advertising.

All orders must be in writing and will automatically be set in regular classified type. *Box numbers are not available.*

Charges:

Indiana physicians		25¢/word	1 (85	min)
Out-of-state physicians		35¢/word	1 (\$7	min)
Hospitals/health care facilities	5	60¢/word	(\$10	min)
Realtors/commercial recruitment				
and all others	7	75¢/word	(\$15	min)

Deadline: First working day of month preceding month of publication.

Payment Procedure: Payment in advance is not required. Invoices and tearsheets are mailed to advertisers upon publication. INDIANA MEDICINE is issued on the 10th of each month

Address: Indiana Medicine, 3935 N. Meridian St., Indianapolis, Ind. 46208.

We Sell

PEACE OF MIND

Let us help you with your security and telecommunications needs. We can custom design a package for your home and/or office, for alarm, telephone, paging, and background music systems. For a free survey of your needs and proposal, call today:

(317) 631-6666

EAGLE PROTECTIVE AND COMMUNICATIONS SERVICES, INC.

425 WEST SOUTH STREET INDIANAPOLIS, INDIANA 46225

VISA and MasterCard accepted

An Ounce of Prevention

Suggestion: You should carefully monitor your methods of collecting overdue accounts. No action should be taken to collect a bill until you have reviewed all of the circumstances.

Discussion: Many times, a patient's reluctance to pay a medical bill is grounded in a dissatisfaction with the treatment rendered or in the results of a given procedure. Non-payment becomes his or her non-litigious way of dealing with a sense of disappointment in the physician.

Therefore, when this scenario is true and the patient is then approached by a strong-armed collection agency sent by the doctor, disappointment and dissatisfaction can easily turn into anger. And this anger, as claim files reflect, usually takes the form of a malpractice suit levied against the doctor.

So, before you make any rash moves to collect an outstanding bill, review the patient's records and make sure that in your zeal to "get what's coming to you," you don't get more than you bargained for.

Defense recommendation prepared by the Medical Liabil ity Mutual Insurance Company, New York, N.Y.

ADVERTISERS INDEX

February 1985 No. 2

Vol. 78

Advanced Information Systems
All Makes Auto Leasing, Inc
American Physicians Life Cover
Ayerst Laboratories
Brown Pharmaceutical Co., Inc
Campbell Laboratories, Inc110
Central Pharmaceuticals, Inc
Chicago Medical Society
Commerical Announcements
Eagle Protective
Eastman Kodak Company91-98
Eli Lilly and Company
Fairbanks Hospital
Freotek, Inc
Indiana Eye Associates
Indiana Medical Bureau
Knoll Pharmaceutical
Lincoln National Life
Marion Laboratories, Inc
Medical Protective Company
Peoples Bank & Trust85
Peoples Drug89
Physicians' Directory155-160
Physicians Insurance Co. of Indiana124
Roche Laboratories Covers
Shearson/American Express96
Sports Medicine Congress, Inc
St. Paul Fire and Marine Insurance95
Stuart Pharmaceuticals87, 88
Upjohn Company
U.S. Navy
Winthrop-Breon141,142

In accepting advertising for publication, INDIANA MEDICINE has exercised reasonable precaution to insure that only reputable, factual advertisements are included. However, we do not have facilities to make comprehensive or complete investigation, and the claims made by advertisers in behalf of goods, services and medicinal preparations, apparatus or physical appliances are to be regarded as those of the advertisers only. Neither sanction nor endorsement of such is warranted, stated or implied by the association.

COMPLETE LABORATORY DOCUMENTATION¹⁻⁵... EXTENSIVE CLINICAL PROOF



FOR THE PREDICTABILITY CONFIRMED BY EXPERIENCE

DALMANE® flurazepam HCI/Roche

THE COMPLETE HYPNOTIC PROVIDES ALL THESE BENEFITS:

- Rapid sleep onset¹⁻⁶
- More total sleep time1.6
- Undiminished efficacy for at least 28 consecutive nights²⁻⁴
- Patients usually awake rested and refreshed^{7.9}
- Avoids causing early awakenings or rebound insomnia after discontinuation of therapy^{2,5,10-12}

Caution patients about driving, operating hazardous machinery or drinking alcohol during therapy. Limit dose to 15 mg in elderly or debilitated patients. Contraindicated during pregnancy.

DALMANE®flurazepam HCI/Roche

References: 1. Kales J et al. Clin Pharmacol Ther 12 691-697, Jul-Aug 1971. 2. Kales A et al. Clin Pharmacol Ther 18:356-363, Sep 1975. 3. Kales A et al. Clin Pharmacol Ther 19:576-583, May 1976. 4. Kales A et al. Clin Pharmacol Ther 19:576-583, May 1976. 4. Kales A et al. Clin Pharmacol Ther 19:576-583, May 1976. 4. Kales A et al. Clin Pharmacol Ther 32:781-784, Dec 1979. 6. Kales A, Kales JD. J Clin Pharmacol J. Allen MD. Shader RI. Clin Pharmacol Ther 21:355-361, Mar 1977. 8. Zimmerman AM. Curr Ther Res 13:18-22, Jan 1971. 9. Amrein Re 4al. Drugs Exp Clin Res 9(1):85-99, 1983. 10. Monti JM. Methods Find Exp Clin Pharmacol 3:303-326, May 1981. 11. Greenblatt DJ et al. Sleep 5(Suppl. 1):518-S27, 1982. 12. Kales A et al. Pharmacology 26:121-137, 1983.

DALMANE® ® flurazepam HCI/Roche

Before prescribing, please consult complete product information, a summary of which follows:

Indications: Effective in all types of insomnia characterized by difficulty in falling asleep, frequent nocturnal awakenings and/or early morning awakening; in patients with recurring insomnia or poor sleeping habits; in acute or chronic medical situations requiring restful sleep. Objective sleep laboratory data have shown effectiveness for at least 28 consecutive nights of administration. Since insomnia is often transient and intermittent, prolonged administration is generally not necessary or recommended. Repeated therapy should only be undertaken with appropriate patient evaluation.

Contraindications: Known hypersensitivity to flurazepam HCl, pregnancy Benzodiazepines may cause fetal damage when administered during pregnancy Several studies suggest an increased risk of congenital malformations associated with benzodiazepine use during the first firmester. Warn patients of the potential risks to the tetus should the possibility of becoming pregnant exist while receiving flurazepam. Instruct patient to discontinue drug prior to becoming pregnant. Consider the possibility of pregnancy prior to instituting therapy.

Warnings: Caution patients about possible combined effects with alcohol and other CNS depressants. An additive effect may occur if alcohol is consumed the day following use for nightime sedation. This potential may exist for several days following discontinuation. Caution against hazardous occupations requiring complete mental alertness (e.g., operating machinery, driving). Potential impairment of performance of such activities may occur the day following ingestion. Not recommended for use in persons under 15 years of age. Though physical and psychological dependence have not been reported on recommended doses, abrupt discontinuation should be avoided with gradual tapering of dosage for those patients on medication for a prolonged period of time. Use caution in administering to addiction-prone individuals or those who might increase dosage.

might increase dosage.

Precautions: In elderly and debilitated patients, it is recommended that the dosage be limited to 15 mg to reduce risk of oversedation, dizziness, confusion and/or ataxia. Consider potential additive effects with other hypnotics or CNS depressants. Employ usual precautions in severely depressed patients, or in those with latent depression or suicidal tendencies, or in those with impaired renal or hepatic function.

Adverse Reactions: Dizziness, drowsiness, lightheadedness, staggering, ataxia and falling have occurred, particularly in elderly or deblitated patients. Severe sedation, lethargy, disorientation and coma, probably indicative of drug intolerance or overdosage, have been reported. Also reported, headache, heartburn, upset stomach, nausea, vomiting, diarrhea, constipation, GI pain, nervousness, talkativeness, apprehension, irritability, weakness, palpitations, chest pains, body and joint pains and GU complaints. There have also been rare occurrences of leukopenia, granulocytopenia, sweating, tlushes, difficulty in focusing, blurred vision, burning eyes, faintness, hypotension, shortness of breath, pruritus, skin rash, fry mouth, bitter taste, excessive salivation, anorexia, euphoria, depression, slurred speech, confusion, restlessness, hallucinations, and elevated SGOT, SGPT, total and direct bilirubins, and alkaline phosphatase, and paradoxical reactions, e.g., excitement, stimulation and hyperactivity.

Dosage: Individualize for maximum beneficial effect *Adults:* 30 mg usual dosage; 15 mg may suffice in some patients. *Elderly or debilitated patients:* 15 mg recommended initially until response is determined. **Supplied:** Capsules containing 15 mg or 30 mg flurazepam HCI.



Roche Products Inc. Manati, Puerto Rico 00701 DOCUMENTED IN THE SLEEP LABORATORY1-5

PROVEN IN THE PATIENT'S HOME





FOR A COMPLETE NIGHT'S SLEEP

DALMANE® flurazepam HCI/Roche

STANDS APART
15-MG/30-MG CAPSULES

See preceding page for references and summary of product information. Copyright © 1984 by Roche Products Inc. All rights reserved.



Pediatric Head Injuries

MARCH 1985

VOL.78

NO.3

INDIANA MEDICINE

The Journal of the Indiana State Medical Association

Z Z 10 SHATTUCK SIREE BOSTON

FOR MEDICAL PROFESSIONAL LIABILITY COVERAGE, THE ISMA STRONGLY RECOMMENDS PHYSICIANS INSURANCE COMPANY OF INDIANA. Several companies are

anxious to provide most Indiana physicians with medical professional liability insurance coverage. *Only one* has received the formal endorsement, support, and sponsorship of the Indiana State Medical Association. That company is PICI, Physicians Insurance Company of Indiana.

Why PICI?

Because PICI is committed to providing Indiana physicians with the best possible coverage at the lowest possible rates throughout their medical careers. Indiana physicians dominate the company's board of directors and serve on budget, claims and underwriting committees. PICI is a publicly held stock company, and provides annual as well as periodic interim financial reports.

With PICI, you know what's happening to your premium dollars. You will receive information about claims experience and trends. You are guaranteed input on company activities, through your physician members of the company's board and its committees. You are part of the company.

Through PICI, you also receive competitively priced auto, homeowners, office protection and personal umbrella coverages, designed and offered with the same long term commitment.

Compare all that PICI offers with what you will obtain from other sources of medical professional liability and other essential insurance coverages. We think you'll agree that the ISMA has endorsed the best.

The Accountable Company . . .



3901 West 86th Street Suite 350 P.O. Box 689059 Indianapolis, Indiana 46268 (317) 872–3046 or toll free in Indiana (800) 732–1313

MINDIQUES MINDIQUES

Vol. 78, No. 3 MARCH 1985

WINNER

Sandoz Medical Journalis as Award 1976-1979

SCIENTIFIC ARTICLES

- 188 CME: Gastroesophageal Reflux: An Update
- 194 PD CRITICAL CARE: Pediatric Head Injury
- 198 Cochlear Implants as Sensory Aids for Deaf Children
- 206 Intraoperative Radiotherapy in Advanced, Recurrent or Metastatic Malignancy
- 210 Toxocara canis in Humans
- 212 Babesia microti in an Indiana Woman

FEATURES

- 182 Medic Alert Week
- 214 Bogus Records Used to Dupe Doctors for Drugs
- 216 President's Message: Public Law 146: An Indiana Advantage
- 218 From the Executive Director: Joint Ventures: Wave of the Future
- 220 1984 Membership Report
- 225 The Auxiliary's Day at the Top

DEPARTMENTS, MISCELLANEOUS

- 168 Medical Museum Notes
- 170 What's New?
- 172 Future File
- 178 Public Health Notes
- 180 Cancer Corner
- 208 Drug Names
- 219 Koala Adolescent Center
- 224 Auxiliary Report
- 226 Book Reviews
- 231 News Notes
- 233 New ISMA Members
- 233 CME Awards
- 243 CME Quiz
- 244 ISMA's Leadership
- 250 Membership Roster

USPS 284-440 ISSN 0746-8288

OFFICE OF PUBLICATION: 3935 N. Meridian St., Indianapolis, Ind. 46208 Tel: (317) 925-7545

INDIANA MEDICINE (ISSN 0746-8288) is published monthly by the Indiana State Medical Association. Second-class postage paid at Indianapolis, Ind.

POSTMASTER: Send address changes to Indiana Middlener, 3935 N. Meridian St., Indianapolis, Ind. 46208.

Yearly subscription rates: \$20 domestic, \$22 Canada, \$23 foreign. Library rates: \$18 domestic, \$20 Canada, \$21 foreign. Senior ISMA members and full time

medical students—\$10. Single copies not available. Subscriptions renewable only in January and July.

Views expressed do not necessarily teflect the opinions of the editors. No copyright is claimed, unless specifically indicated. Copyright rests solely with authors, who are responsible for statements made in their articles. Scientific and editorial contributions are accepted for exclusive publication, subject to editorial requirements. Publication deadline: 1st day of month preceding month of issue. Instructions for authors available upon request.

All issues since 1967 are available on microfilm from University Microfilms International, 300 N. Zeeb Rd., Ann Arbor, Mich. 48106. Indexed in Index Medicus and Hospital Literature Index.

Advertising rates and data available upon request.

EDHOR

Frank B. Ramsey, M.D.

MANAGING EDITOR

Martin T. Badger

BUSINESS MANAGER

Donald F. Foy

CIRCULATION MANAGER

Karvl Hancock

EDITORIAL BOARD

Elton Heaton, M.D.

Nancy C. A. Roeske, M.D.

(Terms expire Dec. 31, 1985)

Alvin J. Haley, M.D.

Alan T. Marty, M.D.

(Terms expire Dec. 31, 1986)

Thomas J. Conway, M.D.

LE. Michael, M.D.

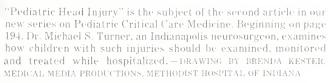
(Terms expire Dec. 31, 1987)

Vacant

Vacant

(Terms expire Dec. 31, 1985)

ABOUT THE COVER



CONSULTING EDITORS

Steven C. Beering, M.D., Charles A. Bonsett, M.D., A. W. Cavins, M.D., Rodney A. Mannion, M.D., Lall G. Montgomery, M.D., Paul S. Rhoads, M.D., W. D. Snively, M.D., L.W. Wilkens, M.D.



MEDICAL MUSEUM NOTES

CHARLES A. BONSETT, M.D., Indianapolis





between a prominent Republican and a prominent Democrat was reported in *The Indianapolis Star* of Feb. 21, 1911 (p. 8). The politicians were discussing Theodore Roosevelt and his young cousin, Franklin. Theodore Roosevelt's progressive reforms during his years as a Republican President had angered a large segment of American industry. Meanwhile, young Franklin had just launched his political career with his election as a Democrat to the New York Senate.

"I see you've got one of these, too," said the Republican (meaning a Roosevelt).

"Yes," was the Democrat's reply, "but he's still young."

"Take my advice and drown him before he grows up. Ours was once young, too."

When Franklin Roosevelt initiated his Presidency in 1933, there were many who felt that this advice should have been heeded, but they were far outnumbered by those who had enthusiasm for the radical reforms that Roosevelt brought to his administration. Among the earliest of these was his National Industrial Recovery Act; its policies were directed by the National Recovery Administration—the NRA.

The NRA and Roosevelt have nothing to do with this page of Notes except to relate the national symbol for 1933—the NRA's blue eagle—with the 1933 graduation class of the I.U. School of Medicine.

The blue eagle with its motto, "We Do Our Part," was the symbol of the NRA. By late spring, when members







Megenhardt

Norman

Reynolds









Rosenak

Hier

Thomas

Van Buskirk

of the Class of '33 received their diplomas, this symbol was ubiquitous on the covers of magazines and newspapers, in shop windows and in ads of all kinds.

The eagle's motto, "We Do Our Part," characterizes the remarkable contribution of seven members of the Class of '33 who, at their 50th anniversary in 1983, resolved to contribute toward the Medical Museum's effort in preserving Indiana's medical history. These seven physicians are shown here as they appeared in their class photograph in 1933.

Two of these physicians now live in other states—Dr. Wellington W. Reynolds in New York, and Dr. Everett Thomas in Florida. The others are Dr. Dennis Megenhardt, the class president, Dr. Bernard Rosenak, the class treasurer, Dr. William Norman Dr. Paul Stier, and Dr. Edmund Van Buskirk.

The annual meeting of the Indiana Medical History Society will take place Saturday, April 20, 1985, at 10 a.m. in the Ampitheater of the Old Pathology Building.

Dr. Rosenak presented his valuable collection of manuscripts and artifacts to the Indiana Historical Society and to the Museum. Now on display at the Museum is his lithograph of William Buchan, author of the first text on domestic medicine, which went through a number of editions in the 18th century. The Society's library has a copy of this work.

Dr. Van Buskirk is the source of the Museum's diploma from the Fort Wayne College of Medicine, and other essential material. He and Dr. Rosenak give substantially of their time and talent in developing the Museum.

In terms of cash contributions to the Museum's long-term fund, Dr. Megenhardt and Dr. Norman have been magnanimous. All seven have given most generously. The total value of the contributions of these seven remarkable men exceeds \$8,000.

The NRA and its blue eagle were declared unconstitutional in 1935. The motto, "We Do Our Part," lives on as demonstrated by these seven dedicated Hoosiers, members of the Class of '33, to whom we all owe a debt of gratitude.

Thank you, gentlemen.

Let your patients shop at home for health care products.

HOME HEALTH CARE

Our free catalog has everything from hospital beds to bandages, from diabetic syringes to wheelchairs. All delivered to your patients' doors from one of America's largest and most dependable suppliers. Your patients can order by mail or toll-free phone. They'll get fast service and phone consultation by experienced professionals. If there's a Peoples Drug Store in your area, patients may order items through the catalog at the pharmacy. You can write or call the Peoples Home Health Care Center listed below for your personal copy of the catalog for your patients' use.

FREE CATALOG PHONE TOLL-FREE (800) 368-4243



8903 Three Chopt Road, Richmond, VA 23229

WHAT'S NEWY

Smith Kline & French announce the availability of Tagamet (cimetidine) in a 400 mg. b.i.d. dosage regimen as an alternate oral dosage for duodenal ulcer patients in whom the physician feels it is appropriate. This may include patients with a history of noncompliance and those for whom the added convenience of twice a day dosing is desirable.

Amko features two sizes in its Poole Abdominal Section Tubes. The straight tube is 30 French, the curved tube measures 23 French. Both have larger apertures to minimize clogging. Each tube has a vent that makes convenient interruption of suction possible.

Hoffman-La Roche has agreed to market a number of its injectable products as part of Abbott Laboratories' new ADD-Vantage intravenous drug admixture system. Roche is the third pharmaceutical company to participate in the ADD-Yantage system. Eli Lilly and Burroughs Wellcome are the other two. ADD Vantage is designed for the intermittent I.V. administration of potent drugs that do not have long-term stability in solution. With the new system antibiotics and other drugs do not have to be mixed until just prior to the time of administration. Hospitals will be able to reduce drug waste, often caused by cancelled or changed prescriptions. The pharmacy will conserve labor and reduce material costs.

To you want to grab your last chance

Leadvantage of three great finan-

News of what is new in the medical supply industry is composed of abstracts from news releases by book publishers and manufacturers of pharmaceuticals, clinical laboratory supplies, instruments and surgical appliances. Each item is published as news and does not necessarily constitute an endorsement of a product or recommendation for its use by INDIANA MEDICINE or by the Indiana State Medical Association.

Ernst & Whinney offers the "Chinical Review System," a microcomputer software product that helps hospitals automate utilization review and resource management. The patient's length of stay may be closely monitored for DRG purposes. The firm says it's important to begin this review at the time of admission because documentation of treatment patterns provides valuable feedback to physicians; this is not possible if DRGs are assigned only after the patient is discharged.

The FDA has approved the 3M/House Coehlear Implant, a device created to provide hearing to profoundly deaf people over the age of 18. Richard T. Miyamoto, M.D., describes the nature and function of the device in an article in this issue of Indiana Medicine. Dr. Miyamoto served as one of the co-investigators of the implant prior to approval.

Brentwood Instruments distributes the Brentwood Runner-2 treadmill. For clinical and diagnostic use, it has a speed of 1.5 to 10 mph and for work load requirements will elevate from 0% to 20%.

Repro-Med Systems has received FDA approval to market a new device designed to improve fertility. The Testicular Hypothermia Device is appropriate for men who produce poor semen as a result of abnormally high testicular temperature. The THD improves semen quality by lowering the temperature and may make the difference between infertility and fertility in such men.

Pillow Talk, Inc. distributes a new kind of mattress cover, made by laminating a soft comfortable flannelette material onto both sides of tough vinyl. The pad is machine washable, bleachable and tumble dries quickly. It carries anchor bands at each corner to hold it firmly onto any bed. Comes in sizes for baby carriage, crib and for standard beds, twins, queen size and king size. Fluids applied to either surface will absorb into that surface but will not penetrate the barrier.

REII Publishing offers Hanson's Guidelines, a publication that simplifies the study of prospective types of copiers, saves time for prospective buyers by listing characteristics of a multitude of copiers, and allows buyers to choose the copier that will fit their copy needs. Subscriptions are \$110 per year (3 issues) or \$165 for two years; for those who will be shopping for a copier in the near future, a single issue can be purchased for \$40.

Hewlett-Packard has a free brochure on designing effective overhead transparencies. These are the transparencies which, when placed on a reflecting projector, will produce an enlarged image on a viewing screen. The brochure covers "keeping transparencies simple and direct, adding color and special effects, and considering the best viewing distance."



"When he tried to milk the bull, I figured it was time to bring him here."

PRACTICE MADE PERFECT



The C/T/S Medical Management System is a proven, easy-to-use, fully-supported way to a healthier bottom line for you and your patients.

C/T/S is a company dedicated to improving the efficiency and profitability of medical practices through state-of-the-art computerization. Medical management systems are C/T/S's only business.

PROVEN PERFORMANCE.

The C/T/S Medical Management System was developed by a doctor...with an understanding of the unique problems of medical practice that only a doctor could have.

For over six years, C/T/S systems have been in use by practicing physicians, performing myriad tasks that have enabled them to reduce overtime and paperwork costs and increase productivity.

SPECIALIZED.

The C/T/S Medical Management System is configured individually for each practice, hospital department or HMO...and can accommodate single or multiple practices and/or multiple office networks. Systems are available to accommodate all sizes and specialties, with needs from one to 39 terminals, 42 printers, and 512 megabytes of disk storage.

Every capability is built right into the C/T/S system: insurance claims processing and monitoring (paperless claims), appointments, surgery schedules, medical records, data-base access, billing, receivables management, mailings/recalls, general ledger, payroll, front desk management and more.

C/T/S provides a complete, turn-key system...with expansion capability to handle all of your future growth.

EASY-TO-USE.

The C/T/S system is designed to go right to work as soon as it's installed. Our comprehensive on-site training program makes your staff feel right at home...and on-screen "Help" menus are always available.

FULLY-SUPPORTED.

The C/T/S system uses Wang hardware, with service provided by Wang's nationwide service network.

All software is serviced directly by C/T/S.

WANG

The C/T/S staff of specialized program developers is always enhancing and refining our software product...annual updates are provided to our clients at no additional charge. C/T/S also provides custom programming for those few, one-of-a-kind requirements that are not already met by the system.

CALL 1-800-638-2667

for more information and to arrange a no-charge feasibility analysis. In Maryland call (301) 532-2870.



Computer Terminal Services, Inc.

THE SYSTEM IS THE SOLUTION.

National Sales Office:

Village of Cross Keys • Suite 212 Baltimore, Maryland 21210 Regional Office:

10475 Montgomery Road Cincinnati, Ohio 45242

FUTURE FILE

Indiana University CME

For the Primary Care Physician

March 20 - Diabetic Microangioplasty, Holiday Inn North, Indianapolis.

March 27 - Dermatology Update, Holiday Inn North, Indianapolis.

March 29 - Oncology Seminar, Vigo County Library, Terre Haute.

April 12—New Directions in Gynecologic Oncology, Holiday Inn Airport, Indianapolis.

 ${\it May 15-Arrhythmias, Holiday Inn} \\ {\it Airport, Indianapolis.}$

May 16—Pharmacological Management of Cardiovascular Disease, Reid Memorial Hospital, Richmond.

For the Specialist

March 22-23 – Anesthesia Update, Radisson Hotel, Indianapolis.

April 1-3-Echocardiography Workshop, Indiana University Medical Center.

For additional information, contact the CME Division, Indiana University School of Medicine – (317) 264-8353.

Alaska Annual Meeting

ISMA members are invited to attend the annual convention of the Alaska State Medical Association, which meets June 5 to 8 at Haines, in southeast Alaska. There will be several scientific sessions and a social program which includes a Salman Bake and a tour of the Chilcoot Trail.

Write or call ASMA at 4107 Laurel St., Suite 1, Anchorage, Alaska 99508-(907) 562-2662.

Milwaukee Seminar

"Diagnosis and Treatment of Thromboembolic Disease 1985" is the subject of a CME seminar to be held May 16 to 18 at the Pfister Hotel in Milwaukee.

Sponsors are the University of Wisconsin, the Mount Sinai Medical Center, and the Univ. of Wisconsin Extension, CME. AMA Category 1 credit is 10 hours.

Contact Sarah Aslakson, 465B WARF Bldg., 610 Walnut St., Madison, Wise. 53705-(608) 263-2856.

Rheumatic Diseases

"Rheumatology Update 1985" will be the subject of a postgraduate symposium in rheumatic diseases Thursday, April 25, in the main auditorium of Jewish Hospital, Louisville.

Members of the University of Louisville faculty and a panel of visiting distinguished rheumatologists will discuss a variety of forms of major types of rheumatic disease. The Kentucky Chapter of the Arthritis Foundation is cooperating. The conference is accredited for five CME hours.

Contact Debbie Molnar, Jewish Hospital, 217 E. Chestnut St., Louisville, Ky. 40202 – (502) 587-4375.

Family Medicine Review

"Family Medicine Review with Testing Techniques for Board Exams" is the subject to be presented by Scott and White and Texas A&M University College of Medicine, Dept. of Family Practice, May 29 to June 2, in Austin, Tex.

To register, contact Scott and White CME, 2401 S. 31st St., Temple, Tex. 76508 – (817) 774-2350.

GYN Malignancies

"Advances in the Management of GYN Malignancies" is the subject of a program to be held April 12 at the Airport Holiday Inn, Indianapolis.

The course, accredited for AMA Category 1 credit, will feature Dr. Taylor Wharten and Dr. Allen Lichter. It is sponsored by the Depts. of Radiation Oncology and OB-GYN, Indiana University School of Medicine.

For additional information, contact Alison Calkins, M.D., Radiation Therapy 071, 1100 W. Michigan St., Indianapolis 46223 – (317) 264-2524.

The Journal of the American Medical Association publishes a list of CME courses for the United States twice yearly. The January listing features courses offered from March through August; the July listing features courses offered from September through February.

NIH Conference

"Electroconvulsant Therapy" will be the topic of a Consensus Development Conference to be held June 10 to 12 at the Masur Auditorium, Clinical Center, National Institutes of Health, 9000 Rockville Pike, Bethesda, Md.

For program information, write or call Jack D. Blaine, M.D., National Institute of Mental Health, Parklawn Bldg., Rm. 10C06, 5600 Fishers Lane, Rockville, Md. 20857 – (301) 443-3568.

Hypertension Conference

The National Conference on High Blood Pressure, which brings together individuals from many disciplines involved in the detection and treatment of high blood pressure, will meet April 29 and 30 at the Palmer House in Chicago.

Registration fee is \$165. Social events will include a reception at The Art Institute of Chicago, a Nurses' Luncheon and an Awards Luncheon. These events are included in the registration fee, except for the Nurses' Luncheon (\$5).

For details contact Conference Headquarters, 2121 Wisconsin Ave., N.W., Washington, D.C. 20007 – (202) 944-3176.

Indiana AAPS to Meet

The Indiana Chapter of the Association of American Physicians and Surgeons meets on Saturday, April 20 at Laughners Cafeteria, 4004 US 31 South, Indianapolis.

Dr. Victor F. Duvall, a private practitioner from Clarkson, Ky., will speak relative to the preservation of private practice amidst third-party contenders. Dr. Duvall is secretary of national AAPS. The business meeting of the chapter is scheduled at 3 p.m., with dinner at 5 and the featured speaker at 6:15.

All physicians are invited to attend. Reservations are not necessary. For further information call Dr. Robert Rudesill—(317) 926-3939.

CONTINUED ON PAGE 174

Angina comes in many forms...



So does SORBITRATE® SOSORBIDE DINITRATE)

Unsurpassed flexibility in nitrate therapy.





















30 mg





 $2.5 \, \text{mg}$ 5 mg 10 mg Sublingual Tablets

5 mg

10 mg Chewable Tablets

5 mg

10 mg

20 mg Oral "Swallow" Tablets 40 mg

40 mg Sustained Action "Swallow" Tablets

SORBITRATE

Please consult full prescribing information before use. A summary follows.

INDICATIONS AND USAGE: #BRBTRATE or a settide dinitrately sundicated for the treatment of an ignorable true. All decaged and if so sorbide dinitrate may be used predipilate all be dear a settle open y and a eventy if angular take is and can be expected for reaset the second or about a good introdycer.

The rate open and it how able forms if the drug are indicated for acute prophylar in problem, where taken a few or in the abetice is trained and to provide angunal attacks. Because of a slower most of the time on forms if we orbide din trate are rotin dicated for a little and forms if we orbide din trate are rotin dicated for a little and forms.

obtained the first three informs districted in retail and increased and increased of the first three informs districted in patients who have shown purported hyperexist strictly or dissyncrasy for for other nitrates or nitrites. Epinephrine and what is a supported by present a trivity or dissyncrasy for for other nitrates or nitrites. Epinephrine and what is a supported by the first of the first properties. So of the first properties of the first properties of the first properties of the first properties of the first properties. So of the first properties of the first properties of the first properties of the first properties of the first properties. So of the first properties of the first prop

able to differentiate isosorbide dinitrate from placebol after 4 weeks of therapy and, in open trials, an effect seems defectable for as ong as several months. Therain electable for as ong as several months. Therain electable is in industrial workers continuously exposed to nitroglycerin. Moreover by sind a dependence also occurs since chest pain acute myocardial infarction, and even sudden death have occurred during temporary withdrawal of nitroglycerin from the workers. In initial trials in anging patients. There are reports of anginal attacks being more easily privided and of rebound in the hemodynamic effects soon after nitrate withdrawal. The relative importance of these observations to the relative importance of these observations to the relative importance of these observations to his patients. When a stopping the drug abruptly information for Patients: Headache may occur disinonium that the patients. Sheadache may occur disinonium that the patients of Patients.

information for Patients: Headache may occur during initial therapy with SORBITRATE adain here, behavior heleved by the use of standard headache remedies or by lowering the search tends. For disappear after the first week or two of use. Drug Interactions: Alcohol may enhance any marked sensitivity to the hypotensive effect of trates.

Isosurhide dinitrate air fill directly on vascular smooth muscle, therefore, any other agent that depends on vascular smooth muscle as the final common path can be expected to have fecteased in tricreased effect depending on the agent.

decreased intri reaced etter. I depending on the agent.

Carcinogenesis, Mutagenesis, Impairment of Fertility: No lining term studies in animals take being performed the valuate their air integering puterhal of this drug. A modified two litter reproductions studies in animals take being performed the valuate their air integering puterhal of this drug. A modified two litter reproductions studies are stated in a contract of the production of

do in Tenedito accurs og wordar. Pediatric Use: The Latety and effectiveness of SORBITRATE inchildren has not been

Pediatric Use: The laterty and effectiveness of SORBITRATE includer has not been established.

ADVERSE REACTIONS: Advenue rear times particularly headache and hypotension, are time affected for line, all trais at various disease, the following have been observed. Headache to intromit (reported mindence varies widely apparently being disease related with an average or arrently of all out 25% adverse reaction and may be severe and persistent. Cultame to viscositation with flucture from unit manufacture pisodes of dizziness and weakness as well as other signs of cerebratish hemia associated with postural hypotension and weakness as well as other signs of cerebratish hemia associated with postural hypotension and experience of the postural hypotension and experience of the properties of the proper

Jen or strating the effectiveness of chronic maintenance therapy with these dosage forms have in the interpreted of the properties of the



FUTURE FILE

CONTINUED FROM PAGE 172

Administrative Medicine

"A Summer Institute in Administrative Medicine," sponsored by the University of Wisconsin at Madison. will meet from June 16 to July 6. It is designed for physicians and other clinicians with management responsibilities. CME Category 1 credit is available.

Participants may select two courses from the following: Health Accounting and Finance; Quality of Health Care - Evaluation and Assurance; The Politics of Health Policy; Micro-computing for Clinical Administration; Ethical Issues in Administrative Medicine: Personnel Management in Health Care Institutions; and Legal Issues in Health Care.

Contact David A. Kindig, M.D., University of Wisconsin Medical School, 1225 Observatory Drive, Madison, Wisc. 53706 - (608) 263-4889.

Workshop for Residents

The ISMA and the Resident Medical Society will co-sponsor a work shop April 19 and 20 at St. Francis Hospital, Beech Grove.

Staff from the AMA Dept. of Practice Management will discuss patient relations, accounting systems, personnel management, third-party payors and medical records. ISMA legal counsel will review corporate and malpractice law requirements in In-

For more information, contact Carol Ann Cunningham at ISMA headquarters, Indianapolis.

Sports Medicine

The eighth annual Sports Medicine Symposium at Madison, Wisc. meets April 12 and 13. The program is designed for physicians, nurses, therapists and other health care practitioners.

Contact Sarah Aslakson, 465B WARF Bldg., 610 Walnut St., Madi son, Wisc. 53705 - (608) 263-2856.

Kodak presents...



New KODAK EKTACHEM DT60 Analyzer

A timely invest



The KODAK EKTACHEM DT60 Analyzer creates an extra service for your patients without extra investment in labor. And because it can pay for itself in three months, it's a timely investment in your future.

The chemistry tests you need

With the DT60 Analyzer you perform key chemistry

tests in your own office instead of using an outside laboratory. Available tests include glucose, cholesterol, triglycerides, BUN, uric acid, sodium, and potassium, with total hemoglobin and bilirubin coming soon.

The time you need

Get test results in five minutes or less; perform

up to 75 tests an hour. Save time waiting for results to assist in your diagnosis, and on followup phone calls.

The accuracy you need

The DT60 Analyzer uses proven technology and methodology from the KODAK EKTACHEM 400 and 700 Analyzers, which

ment for your office.



rcide millions of accurate, reise results to clinical utratories nationwide.

need need

a as a personal comur, features dry slide a nology to eliminate eagents. It is autod to free up your and training takes only minutes. From the finger-stick sample to results printout, the DT60 Analyzer is simplicity itself.

To see what the DT60 Analyzer can do for you, write Eastman Kodak Company, Dept. 740-B, 343 State Street, Rochester, NY 14650, or call **1 800 44KODAK**, Ext 423 (1 800 445-6325, Ext 423) today.



Leading the way in healthcare technology for over 100 years.

KODAK EKTACHEM
Clinical Chemistry Products

PUBLIC HEALTH NOTES

The Indiana Statewide Genetic Diseases Program is an Indiana State Board of Health project coordinated by staff of the genetic diseases section in the Division of Maternal and Child Health. The program receives its financial support from both state and federal sources. A federal grant under the Title V Genetic Diseases Act has provided funding since October 1981. The program, now in its fourth year, strives to assure that Hoosier families, regardless of their ability to pay, have access to comprehensive services for genetic diseases.

During the first year of its existence, the genetic diseases section was primarily involved in educating health professionals about services available for genetic diseases. Perhaps the most significant developments by the end of the first year involved the public's interest in the program. A genetics advisory committee with statewide representation was appointed by the State Health Commissioner to represent the interests of the people of Indiana in the development of programs and policies concerning genetic diseases and services. This committee had its first meeting in May 1983.

Beginning in October 1983 increased federal funding allowed the Indiana State Board of Health to supplement further the genetic services provided in regional genetic counseling centers. It also enabled the genetic diseases section to hire and train a social worker to serve as a genetic and family support counselor, an important step toward providing appropriate follow-up for families with acute psychosocial needs as a result of coping with a child or family member with a genetic disorder. The importance of follow-up was brought home by an episode during which a child needing retesting for phenylketonuria (PKU), a metabolic genetic disease resulting in mental retardation, was tracked to Texas by personnel of the section and appropriate contacts were made in the Texas Health Department to provide a refest

Newborns in Indiana are currently screened for PKU and hypothyroidism, two disorders that result in mental retardation and other medical problems if untreated. A number of advisory committees to the State Board of Health, including the Task Force for the Prevention of Handicapping Conditions, have recommended that the State Board of Health consider expanding newborn screening by adding other metabolic disorders.

The Genetics Advisory Committee has continued developing programs and policies concerning genetic diseases and services. Several working subcommittees were formed during 1984. One assists in further planning for educational activities concerning genetic diseases and services. Another oversees the evaluation of geservices and makes recommendations for improvements. Finally, a third subcommittee is studying the need for a statewide surveillance system for birth defects (a birth defects' registry) and will recommend appropriate action to meet this need, including the investigation of birth defects' clusters.

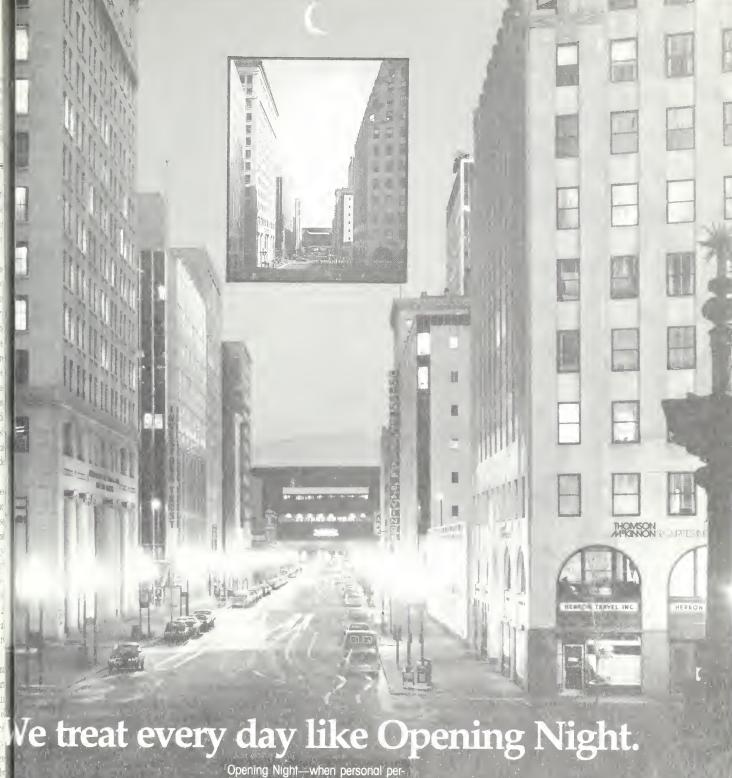
The genetic diseases section has established a number of priorities for 1985. A major concern is the need to continue expansion of genetic services in the state. It is hoped that genetic counseling capabilities will be expanded through the development of a new regional genetic services center in Gary to serve northwestern Indiana, the addition of personnel in currently operating centers to meet the increased demand for services, and the development of additional satellite clinics.

A pilot demonstration project for newborn screening of six genetic disorders will be continued at Indiana University Medical Center. During the course of the project, appropriate evaluation will be made relative to statewide implementation of an ex panded newborn screening program. Statewide sickle cell programs will be evaluated relative to planning for statewide newborn screening for sickle cell disease.

Education is a major priority of the Statewide Genetics Diseases Program. The Subcommittee on Genetics Education of the Genetics Advisory Committee is presently evaluating the need for additional workshops on genetics for school teachers and for more intensive training in genetics for specific health professionals such as nurses, social workers, and dictitians/nutritionists. It is expected that additional one-day conferences for physicians and nurses will be held on a local basis or in conjunction with statewide meetings.

The staff of the genetic diseases section is providing part of the faculty this spring for an intensive course on genetic principles, diseases, and counseling for members of the clergy. The course is a cooperative effort with the Department of Medical Genetics at the Indiana University School of Medicine and includes 15 weeks of 2-hour lecture sessions and clinical counseling experience for 2-3 hours per week.

Future priorities for the Indiana Statewide Genetic Diseases Program will focus on the improvement of data collection as well as improvement of genetic services. The questionnaire/ interview evaluation of genetic services mentioned previously will be expanded to include families served by additional regional genetic centers. The implementation of a microcomputer network to collect data on genetic patient services statewide will be continued. The section expects to take part in the planning for a regional genetic diseases network involving six states. Emphasis will be on education and quality assurance programs for laboratory-based services in cytogenetics. Section staff will also assist in the development of plans for a birth defects monitoring system.



Opening Night—when personal performance is measured in the talents it takes to achieve success in even the most critical eye.

At Peoples Bank we understand the value of personal performance and feel it is the biggest difference in banking today.

When the time comes to demand more performance from your banker, we're ready.

Performance by Peoples Bank We treat every day like Opening Night

peoples bank & trust

Member FDIC
Founded in 1891 by F.T. McWhirter

WILLIAM M. DUGAN, JR., M.D.

Clinical Oncology Center Methodist Hospital of Indiana, Inc. New information from Indiana Division American Cancer Society, Inc. 9575 N. Valparaiso Court Indianapolis 46268 317-872-4432

EVERY PHYSICIAN'S OFFICE— A CANCER DETECTION CENTER

Cancer Corner

Helping Children Understand

In an effort to provide children with understandable, concise information about cancer, as well as alleviate their fears about the disease, the American Cancer Society has published two new brochures, which are available at no charge: What Happened to You Happened to Me, and When Your Brother

or Sister Has Cancer.

The brochure, What Happened to You Happened to Me, is especially helpful to young cancer patients because it was written by children who developed the disease. Each section of the brochure addresses specific experiences that many young people with cancer have in common. Topics

include "How I Felt in the Beginning," "Surgery," "Hair Loss," and "Back to School."

When Your Brother or Sister Has Cancer deals with the range of emotions children experience when a sibling is diagnosed as having cancer. Feelings of jealousy, guilt, neglect, anger and fear are viewed as normal emotions; interaction with parents is encouraged to dispel anxiety and provide support.

According to Richard F. Graffis, M.D., president, Indiana Division, American Cancer Society, the publications are intended to promote healthier attitudes among children about cancer. "The more children understand about cancer, the better able they'll be to cope with their own situations, whether they are afflicted, or if someone they love has cancer." Dr. Graffis said. "With increased knowledge and understanding, children will grow up with less unrealistic fear of the disease. They'll have a more rational outlook."

Both publications were adapted from booklets developed by The Children's Orthopedic Hospital and Medical Center in Seattle, Wash.

Shame on Whom? An Editorial

JOHN R. SEFFRIN, Ph.D. Indianapolis

At least \$1.5 billion will be spent again this year encouraging cigarette smoking through advertising and promotions. Whether it's attractive young couples shown in full-page ads in *Time* and *Newsweek*, or colorful billboards in various sports arenas, the theme is the same—to glamorize smoking.

Despite tobacco industry denials, these ads are shameful attempts to suggest that smoking is an attractive, fun, and healthful habit.

Of course, smoking is not attractive, fun, or healthful. It does, however, continue to be our nation's number one public health enemy. Cigarette smoking is the leading killer of people in the prime of life. Yet disgraceful advertising and slick promotional efforts designed to addict a new generation of smokers continues. What a scandal? What a SHAME!

Without a doubt, non-smoking advocates will never have adequate resources to offset the tobacco

industry's huge advertising budgets which they use to push their toxic products. However, there is much that can be done by us which does not require a large budget. In fact, some anti-smoking efforts are virtually cost-free. Whether it's physicians defacing cigarette ads in their waiting-room magazines, or protests against to-bacco company-sponsored events, our ability to counteract offensive cigarette ads is limited more by our imaginations and commitment than by dollars.

Have we cancelled subscriptions to magazines which censor articles critical of smoking? Do we boycott sporting events sponsored by tobacco companies? Do we write letters to editors of newspapers which fail to cover (or do a good job of covering) smoking-related issues? If not, then let's get with it!

"Talk is cheap"—but not often effective. Action can be both cheap and effective. We must do more. Remember, another 350,000 Americans will be killed again this year by cigarette abuse.

The tactics of the tobacco industry which advertise a toxic product to young Americans is appalling, indeed shameful. Therefore, we must do all we can to shame their efforts publicly.

If we don't shame them, then shame on us.

Grants in Effect

The following grants are in effect in Indiana, as of Jan. 1, 1985:

- Joann J. Otto, Ph.D., Purdue University, \$75,000.
- George K. W. Yim, Ph.D., Purdue University, \$74,237.
- Nicholas C. Jones, Ph.D., Purdue University, \$95,000.
- Institutional Research Grant, Purdue University, \$40,000.
- J. Jose Bonner, Ph.D., Indiana University, \$63,000.
- Frank W. Putnam, Ph.D., Indiana University, \$50,577.
- Institutional Research Grant, Indiana University, \$60,000.
- Curtis Ashendel, Purdue University, \$63,000.

The author is chairman and professor of Health and Safety Education at Indiana University, and chairman of the Indiana Division, American Cancer Society. He is also chairman of the Editorial Board of Smoking and Health Reporter, in which this editorial appeared in January 1985.

BROWN THE BROWN PHARMACEUTICAL CO., INC.

2500 West Sixth Street, Los Angeles, CA 90057

For Full Prescribing Information, Please See PDR. PDR



Android 5 Buccal 10 Oral 25 Oral Methyltestosterone U.S.P. Tablets

ANDROID'F

Fluoxymesterone U.S.P. Tablets, 10 mg.



Medic Alert Week Focuses on Health Protection

HE BENEFITS OF PROTECTING in dividual health and the importance of medical emergency preparedness will be the subjects of a nationwide community education campaign during National Medic Alert Week, April 1-7.

The revived interest in promoting "wellness" and a health-conscious lifestyle that emphasizes prevention and preparedness is the result of continually rising health costs that have ignored the reduction of inflation throughout other sectors of the economy.

The cost of health care plus changing health insurance policies now make it good business for companies and individuals to keep major health problems from becoming major budget problems.

And because of the interest in protecting health and pocketbooks, more and more people are looking at inexpensive ways to stay healthy, from diet and exercise to shopping for health care bargains.

For the millions of Americans who have a medical condition that could affect treatment during an emergency, one of the best bargains is Medic Alert, an emergency medical identification service that helps emergency medical personnel diagnose and treat victims who are un conscious or otherwise unable to articulate their medical condition.

The world's largest emergency medical identification service is provided by Medic Alert Foundation.

There is a \$15 charge for a lifetime membership. In an era when health care costs are doubling every five years, the 29-year-old non-profit foundation has been able to hold the line on its fee through membership donations and corporate contributions.

"Whether you are a diabetic, have an allergy or heart trouble, emergency medical identification is one of the most cost effective ways to insure your health," says Richard Wilbur, M.D., chairman of the board of directors of Medic Alert Foundation International.

"Business travelers and working parents whose children attend day care centers should also evaluate the benefits of joining an emergency medical identification service. It provides a sense of security knowing that emergency personnel will have access to vital information." he added.

It is estimated that 40 million Americans have at least one of the more than 200 "invisible" medical conditions, such as diabetes, heart trouble, hypertension, allergies or epilepsy that physicians and paramedics need to know about before choosing treatment for patients. Emergency medical identification can save emergency personnel the critical time it takes to accurately diagnose and treat victims.

During Medic Alert Week, thousands of volunteers will distribute literature and conduct community education programs to demonstrate the life protecting value of a medical identification system. Endorsed by organizations such as the American Hospital Association, the American College of Emergency Physicians and the National Association of Life Underwriters, Medic Alert is a comprehensive service that provides medical personnel with a person's emergency medical information through a 24-hour "hotline."

The Medic Alert system is based on three components: an identification bracelet or necklace, a wallet card and a 24-hour hotline to a computerized emergency medical information data bank.

Emergency personnel treating a Medic Alert member who is unable to speak need only check the identification emblem to find the patient's special condition engraved along with the member's ID number and the "hotline" phone number. This number can be called collect from anywhere in the world, 24 hours a day.

Within 30 seconds, Medic Alert will provide the member's emergency information, including the name, personal physician and next of kin. In most cases, however, the special medical condition engraved on the bracelet or necklace can provide the critical information that medical professionals need to administer effective treatment.

Individuals, corporations and organizations interested in Medic Alert can call 800/344-3226 (in California, 800/468-1020), or write: Medic Alert, P.O. Box 1009, Turlock, CA 95381.

When does two equal four?



When you prescribe

VELOSEF Capsules

(Cephradine Capsules USP)

Two capsules of Velosef 500 mg BID can be as effective as 250 mg QID — four capsules — of the leading oral cephalosporin...

decide for yourself!

Velosef provides BID effectiveness in upper and lower respiratory tract infections...in urinary tract infections, including cystitis and prostatitis...in skin/skin structure infections when due to susceptible organisms.

Please see prescribing information that follows.



Have your name entered for a chance to win your own Office Computer Diagnosis Center or other valuable "user-friendly" prizes.

Five (5) Grand Prizes OFFICE COMPUTER DIAGNOSIS CENTERan
IBM-PC computer with software that encompasses hundreds of diseases
thousands of symptoms! A \$5,600.00 value!

- Five (5) First Prizes...a briefcase-size Hewlett-Packard Portable Computer valued at \$3,900.00.
- ☐ 500 Second Prizes...a copy of *Computerizing Your Medical Office*:

 A Guide for Physicians and Their Staffs valued at \$17.50

Just complete and return the attached reply card!

OFFICIAL RULES: "Computers in Health Care Drawing"NO PURCHASE NECESSARY

(1.) On an official entry form handprint your name, address and zip code. You may also enter by handprinting your name, address and zip code and the words "Velosef—Computers in Health Care" on a 3" x 5" piece of paper. Entry forms may not be mechanically reproduced (2.) Enter as often as you wish, but each entry must be mailed separately to: "COMPUTERS IN HEALTH CARE DRAWING," P.O. Box 3036, Syosset, NY 11775. All entries must be received by September 9, 1985. (3.) Winners will be selected in random drawings from among all entries received by the National Judging Institute, Inc., an independent judging organization whose decisions are final on all matters relating to this sweepstakes. All prizes will be awarded and winners notified by

mail. Only one prize to an individual or household. Prizes are nontransferable and no substitutions or cash equivalents are allowed. Taxes, if any, are the responsibility of the individual winners. No responsibility is assumed for lost, misdirected or late mail. Winners may be asked to execute an affidavit ot eligibility and release. (4.) Sweepstakes open only to physicians residing in the U.S.A., except employees and their families of E.R. SQUIBB & SONS, INC., its affiliates, subsidiaries, advertising agencies, and Don Jagoda Associates, Inc. This offer is void wherever prohibited, and subject to all federal, state and local laws. (5.) For a list of major prize winners, send a stamped, self-addressed envelope to: "COMPUTERS IN HEALTH CARE" WINNERS LIST, P.O. Box 3154, Syosset, NY 11775.

QUIBB

500 mg

VELOSEF '500'

Cephradine Capsules USP
Usual dosage See insert

NDC 0003-0114-50

VELOSEF® CAPSULES Cephradine Capsules USP VELOSEF® FOR ORAL SUSPENSION Cephradine for Oral Suspension USP

DESCRIPTION: Velosef '250' Capsules and Velosef '500' Capsules (Cephradine Capsules USP) provide 250 mg and 500 mg cephradine, respectively, per capsule. Velosef '125' for Oral Suspension and Velosef '250' for Oral Suspension (Cephradine for Oral Suspension USP) after constitution provide 125 and 250 mg cephradine, respectively, per 5 ml teaspoonful.

INDICATIONS AND USAGE: These preparations are indicated for the treatment of infections caused by susceptible strains of designated microorganisms as follows: Respiratory Tract Infections (e.g., tonsillitis, pharyngitis, and lobar pneumonia) due to *S. pneumoniae* (formerly *D. pneumoniae*) and group A beta-hemolytic streptococci [penicillin is the usual drug of choice in the treatment and prevention of streptococcal infections, including the prophylaxis of rheumatic fever, Velosef (Cephradine, Squibb) is generally effective in the eradication of streptococci from the nasopharynx, substantial data establishing the efficacy of Velosef in the subsequent prevention of rheumatic fever are not available at present]; Otitis Media due to group A beta-hemolytic streptococci, *H. influenzae*, staphylococci, and *S. pneumoniae*; Skin and Skin Structures Infections due to staphylococci and beta-hemolytic streptococci; Urinary Tract Infections, including prostatitis, due to *E. coli, P. mirabilis, Klebsiella* species, and enterococci (*S. laecalis*).

Note: Culture and susceptibility tests should be initiated prior to and during therapy.

CONTRAINDICATIONS: In patients with known hypersensitivity to the cephalosporin group of antibiotics.

WARNINGS: Use cephalosporin derivatives with great caution in penicillinsensitive patients since there is clinical and laboratory evidence of partial cross-allergenicity of the two groups of antibiotics; there are instances of reactions to both drug classes (including anaphylaxis after parenteral use). In persons who have demonstrated some form of allergy, particularly to drugs, use antibiotics, including cephradine, cautiously and only when absolutely necessary.

Pseudomembranous colitis has been reported with the use of cephalosporins (and other broad spectrum antibiotics); therefore, it is important to consider its diagnosis in patients who develop diarrhea in association with antibiotic use. Treatment with broad spec-

trum antibiotics alters normal flora of the colon and may permit overgrowth of clostridia. Studies indicate a toxin produced by *Clostridium difficile* is one primary cause of antibiotic-associated colitis. Cholestyramine and colestipol resins have been shown to bind the toxin *in vitro*. Mild cases of colitis may respond to drug discontinuance alone. Manage moderate to severe cases with fluid, electrolyte and protein supplementation as indicated. Oral vancomycin is the treatment of choice for antibiotic-associated pseudomembranous colitis produced by *C. dillicile* when the colitis is severe or is not relieved by drug discontinuance; consider other causes of colitis.

PRECAUTIONS: General: Follow patients carefully to detect any side effects or unusual manifestations of drug idiosyncrasy. If a hypersensitivity reaction occurs, discontinue the drug and treat the patient with the usual agents, e.g., pressor amines, antihistamines, or corticosteroids. Administer cephradine with caution in the presence of markedly impaired renal function. In patients with known or suspected renal impairment, make careful clinical observation and appropriate laboratory studies prior to and during therapy as cephradine accumulates in the serum and tissues. See package insert for information on treatment of patients with impaired renal function. Prescribe cephradine with caution in individuals with a history of gastrointestinal disease, particularly colitis. Prolonged use of antibiotics may promote the overgrowth of nonsusceptible organisms. Take appropriate measures should superinfection occur during therapy. Indicated surgical procedures should be performed in conjunction with antibiotic therapy.

Information for Patients: Caution diabetic patients that false results may occur with urine glucose tests (see PRECAUTIONS, Drug/Laboratory Test Interactions). Advise the patient to comply with the full course of therapy even if he begins to feel better and to take a missed dose as soon as possible. Tell the patient he may take this medication with food or milk since G.I. upset may be a factor in compliance with the dosage regimen. The patient should report current use of any medicines and should be cautioned not to take other medications unless the physician knows and approves of their use (see PRECAUTIONS, Drug Interactions).

Laboratory Tests: In patients with known or suspected renal impairment, it is advisable to monitor renal function.

Drug Interactions: When administered concurrently, the following drugs may interact with cephalosporins:

Other antibacterial agents — Bacteriostats may interfere with the bactericidal action of cephalosporins in acute infection; other agents, e.g., aminoglycosides, colistin, polymyxins, vancomycin, may increase the possibility of nephrotoxicity.

Can two really equal four?

Health Care Drawing."

SQUIBB

Find out today and participate in the VELOSEF' Capsules (Cephradine Capsules USP) "Computers in Health Care Drawing."

	Please send me a clinical trial 500 mg and enter my name in Care Drawing."			ıles
	Please type or	print clearly.		
Nar	me			
Add	dress			
Cit	y	State	Zıp	
Sig	nature			MD
	I do not wish to receive a trial this time, but please enter my			

ALL ENTRIES MUST BE RECEIVED BY SEPTEMBER 9, 1985.

VELOSEF Capsules (Cephradine Capsules USP) BID

Diuretics (potent "loop diuretics," e.g., furosemide and ethacrynic acid)

— Enhanced possibility for renal toxicity.

Probenecid — Increased and prolonged blood levels of cephalosporins, resulting in increased risk of nephrotoxicity.

Drug/Laboratory Test Interactions: After treatment with cephradine, a false-positive reaction for glucose in the urine may occur with Benedict's solution, Fehling's solution, or with Clinitest® tablets, but not with enzyme-based tests such as Clinistix® and Tes-Tape®. False-positive Coombs test results may occur in newborns whose mothers received a cephalosporin prior to delivery. Cephalosporins have been reported to cause false-positive reactions in tests for urinary proteins which use sulfosalicylic acid, false elevations of urinary 17-ketosteroid values, and prolonged prothrombin times

Carcinogenesis, Mutagenesis: Long-term studies in animals have not been performed to evaluate carcinogenic potential or mutagenesis.

Pregnancy Category B: Reproduction studies have been performed in mice and rats at doses up to 4 times the maximum indicated human dose and have revealed no evidence of impaired fertility or harm to the fetus due to cephradine. There are, however, no adequate and well-controlled studies in pregnant women. Because animal reproduction studies are not always predictive of human response, use this drug during pregnancy only if clearly needed.

Nursing Mothers: Since cephradine is excreted in breast milk during lactation, exercise caution when administering cephradine to a nursing woman

Pediatric Use: Adequate information is unavailable on the efficacy of b.i.d. regimens in children under nine months of age.

ADVERSE REACTIONS: Untoward reactions are limited essentially to G.I. disturbances and, on occasion, to hypersensitivity phenomena. The latter are more likely to occur in persons who have previously demonstrated hypersen-

© 1985 E.R. Squibb & Sons, Inc.

sitivity and those with a history of allergy, asthma, hay fever, or urticaria.

The following adverse reactions have been reported following use of cephradine: G.I. — Symptoms of pseudomembranous colitis can appear during antibiotic therapy, nausea and vomiting have been reported rarely. Skin and Hypersensitivity Reactions — mild urticaria or skin rash, pruritus, joint pains. Hematologic — mild transient eosinophilia, leukopenia and neutropenia. Liver — transient mild rise of SGOT, SGPT, and total bilirubin with no evidence of hepatocellular damage. Renal — transitory rises in BUN have been observed in some patients treated with cephalosporins; their frequency increases in patients over 50 years old. In adults for whom serum creatinine determinations were performed, the rise in BUN was not accompanied by a rise in serum creatinine. Others — dizziness, tightness in the chest, and candidal vaginitis.

DOSAGE: Adults — For respiratory tract infections (other than lobar pneumonia) and skin and skin structure infections: 250 mg q. 6 h or 500 mg q. 12 h. For lobar pneumonia. 500 mg q. 6 h or 1 g q. 12 h. For uncomplicated urinary tract infections: 500 mg q. 12 h; for more serious UTI, including prostatitis, 500 mg q. 6 h or 1 g q. 12 h. Severe or chronic infections may require larger doses (up to 1 g q. 6 h). For dosage recommendations in patients with impaired renal function, consult package insert.

Children over 9 months of age — 25 to 50 mg/kg/day in equally divided doses q. 6 or 12 h. For otitis media due to *H. influenzae*: 75 to 100 mg/kg/day in equally divided doses q. 6 or 12 h but not to exceed 4 g/day. Dosage for children should not exceed dosage recommended for adults. There are no adequate data available on efficacy of b.i.d. regimens in children under 9 months of age.

For full prescribing information, consult package insert.

HOW SUPPLIED: 250 mg and 500 mg capsules in bottles of 24 and 100 and Unimatic® unit-dose packs of 100. 125 mg and 250 mg for oral suspension in bottles of 100 ml and 200 ml.

785-501

Issued: Jan. 1985



BUSINESS REPLY MAIL

First Class Permit No. 99, Syosset, New York 11791

Postage will be paid by

"Computers in Health Care Drawing"

P.O. Box 3036 Syosset, New York 11775 NO POSTAGE NECESSARY IF MAILED IN THE UNITED STATES



THE ADMINISTRATION, THE CONGRESS AND THE LOBBYISTS ARE ABOUT TO HAMMER OUT THE MOST SWEEPING TAX LAWS YOUR WALLET HAS EVER FELT.

HERE'S HOW TO FOLLOW THEM STEP BY STEP:

What we've done is organize an ongoing program to keep you informed of all the major tax proposals.

We're offering this program free. And it comes without any obligation

on your part.

Your free, ongoing subscription to the "Tax Alert." Part one of the program is a series of "Tax Alert" bulletins. Every time there's a major new development in the tax debate, a new "Tax Alert" will be mailed to you immediately.

You'll receive the facts to date, their probable impact on you, their probable trend as the debate continues, and recommendations on what to do about them.

The kickoff bulletin will feature the Treasury, the Kemp-Kasten and the Bradley-Gephardt proposals. While future bulletins will zero in on these, among other issues: your mortgage interest, state and local taxes, tax shelters and corporate fringe benefits.

Your free "Treasury Proposal Work Sheet" To personalize what's going on, we'll also send you a free Tax Work Sheet. It'll give you a side-by-

TAX ALERT # 1

side view of your taxes before and after the Treasury proposal. Then, to eap things off, we'll send you a free work sheet covering the actual tax law that comes out of the debate.

TAX WORK SHEET
ACTUAL PROPOSED

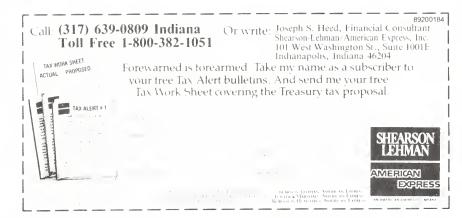
Forewarned is forearmed.

We'll also offer you someone you can talk with about what's going on. Without any obligation, you'll have a direct line to one of our Financial Consultants, and he or she will have a direct line to every department in our firm.

So as our ongoing program forewarns you, you can forearm appropriately.

Contact us today. And together

Contact us today. And together, let's put minds over money.



SHEARSON LEHMAN/AMERICAN EXPRESS AND THE SERIOUS INVESTOR.
MINDS OVER MONEY.^{5M}

1985 Shearson Lehman, American Express Inc.

INDIANA MEDICINE offers its readers a Continuing Medical Education series of articles prepared by the faculty of the Indiana University School of Medicine. The program is coordinated and supported by a grant from the school's Division of Continuing Medical Education.

As an organization accredited for continuing medical education, the Indiana University School of Medicine certifies that this CME activity meets the criteria for one credit hour in Category 1 for the Physician's Recognition Award of the American Medical Association, provided it is used and completed as designated.

To obtain Category 1 credit for this month's article, complete the quiz on page 243.



Gastroesophageal Reflux: An Update

KATHERINE W. O'CONNOR, M.D. Indianapolis

YMPTOMATIC gastroesophageal reflux is one of the most common problems encountered by clinicians. It is the most common inflammatory disorder of the esophagus and a leading cause of upper abdominal pain in adults. The true incidence is hard to define because so many people accept their symptoms as normal. Up to 7% of adults have daily reflux with 36% having symptoms at least monthly. While the number of patients with typical symptoms is large, the true impact of this condition is not easily appreciated because reflux can masquerade as atypical chest pain or present as iron deficiency anemia, asthma, vomiting, or (in infants) failure to thrive.2

Several apparently important pathophysiologic factors are associated with gastroesophageal reflux: incompetence of the lower esophageal sphincter, impaired clearance of acid from the esophagus, and slow gastric emptying. Less firmly established is the role of duodenogastric reflux in potentiating peptic esophagitis.

This review will discuss the major factors that determine the susceptibility to esophagitis. Seven diagnostic tests will be compared and a practical approach to diagnosis and treatment will be presented.

Lower Esophageal Sphincter (LES)

The LES has two principal functions: It must relax in coordination with a swallow to let food enter the stomach and it must prevent gastroduodenal contents from backing up into the esophagus. Although the LES is not a distinct anatomical structure, it is well defined physiologically as a highpressure zone 2 to 4 cm in length. Normal LES pressure is regulated by myogenic, hormonal, and neuronal factors.3 Given the staggering complexity of LES regulation, it is unlikely that any new drug will prevent symptomatic reflux, but cytoprotective agents have great theoretical potential.

From the Dept. of Medicine, Division of Gastroenterology, Indiana University School of Medicine, Indianapolis.

Correspondence: Regenstrief Health Center, Room 614C, 1001 W, 10th St., In dianapolis, Ind. 46202. Reflux may occur even when the resting LES pressure is normal. Especially in asymptomatic refluxers, the LES occasionally relaxes without the stimulus of a swallow, allowing gastric contents to reflux cephalad. These inappropriate relaxations, less frequent swallowing and infrequent (or impaired) contractions in the body of the esophagus occur more commonly during sleep when gravity cannot clear refluxed material as efficiently as when the patient is upright.⁴

Symptomatic reflux is also associated with delayed gastric emptying of liquids. The slowed clearance of acid and pepsin from the stomach predisposes to the development of esophagitis, and may be evidence of a generalized neuromuscular abnormality of gastrointestinal smooth muscle.

Debate continues over the importance of a hiatal hernia in clinical reflux; however, many patients with hiatal hernias do not exhibit reflux esophagitis, not all refluxers have hiatal hernias, but most symptomatic refluxers do have a hiatal hernia. Table 1 is a partial list of physiologic factors, hormones, drugs, and foods that facilitate or resist gastroesophageal reflux.

Esophagitis

There are two variables to epithelial damage: the injurious agent itself, and

the ability of the tissue to resist the agent. Acid and pepsin cause most of the mucosal injury in reflux esophagitis. In the absence of acid and pepsin, bile salts and panereatic digestive enzymes can cause esophagitis through their combined detergent and corrosive actions. More commonly, the duodenal digestive secretions potentiate the damage caused by the gastric secretions.

The substitution of stratified squamous epithelium with columnar epithelium that occurs in a Barrett's esophagus confers some resistance to injury from refluxed liquids, but does harbor a low-grade potential to become malignant. The proliferative changes seen in reflux esophagitis in the basal layers of the squamous epithelium are reversible, as are the mucosal inflammatory changes, but the metaplastic changes probably are permanent.

Diagnosing Reflux

There is a plethora of diagnostic tests for reflux. Each has strengths and shortcomings. A good diagnostic test should be sensitive (detect the disease when present) and specific (exclude the disease when absent). In determining the need for and priority in ordering diagnostic tests, the safety, accuracy, accessibility, expense, and discomfort of the test need to be weighed, as well as whether the condition is being confirmed or excluded.

Different tests evaluate different variables: the potential for reflux (low LES pressure and hiatal hernia), damage to the esophagus (Bernstein test, esophagram, endoscopy), and actual reflux (esophagram, pH probe, and seintiscan). Diagnosing pathologic reflux can be frustrating because everyone refluxes and pathologic reflux is a matter of degree. Diagnostic accuracy depends on how reflux is defined, be it by symptoms, appearance of the esophagus, histology, or a test result (Table 2).

It should be evident that diagnosing and managing reflux esophagitis has to be tempered by sound clinical judg-

	BLE 1 Fending To
Minimize Gastroesophageal Reflux	Promote Gastroesohageal Reflux
Competent LES Esophageal mucosal resistance Efficient esophageal clearance Gastric emptying	Transient relaxation of the LES Inadequate saliva, swallowing, or peristalsis Poor gastic emptying Increased intraabdominal pressure
Hormones: Gastrin Motilin Substance P	Progesterone Secretin Cholecystokinin Glucagon GIP VIP
Neurotransmitters: Alpha adrenergic agonists Cholinergic agents Anticholinesterase	Dopamine Anticholinergies Alpha adrenergic antagonists Beta adrenergic agonists
Other Agents: Histamines Prostaglandin F2a Metoclopramide Domperidone Indomethacin	Prostaglandins E ₁ , E ₂ , A., I. Theophylline Calcium channel blockers Nitropusside Smoking Valium Caffeine Narcotics
Foods: Protein meals Coffee?	Fat Chocolate ETOH Peppermint

	TABLE 2		
Test	Sensitivit <u>y</u> *	Specificity**	Relative Cos
Bernstein	79%	82%	+
pH probe (SART)	84%	83%	+ +
24-hour probe	88%	98%	+ + +
Scintiscan	61%	95%	+ +
Manometry	58%	84%	+ +
Esophagram	40%	85%	+ +
Endoscopy	68%	96%	+ + +

Adapted from Richter and Castelli

*Sensitivity refers to the ability to detect a condition when it is present.

ment. The diagnostic armamentarium consists of the following:

History and Physical: A history of substernal burning pain, regurgitation of bitter fluid unassociated with belehing, postprandial discomfort especially after large meals or reclining makes the diagnosis of reflux straightforward. Further tests may not be necessary and empiric therapy can be initiated unless other conditions need to be excluded or complications are suspected. Examples of conditions usually requiring a more thorough work-up are dysphagia, anemia, heme positive stool, weight loss, chest pain radiating to the jaw or arms, shortness of breath, and intractable emesis. Additional cues that patients need further assessment are the sudden onset of symptoms, the rapid progression of symptoms, or failure to achieve symptomatic relief with treatment. Physical examinations and routine laboratory tests rarely provide diagnostic information about esophagitis.

Acid Perfusion (Bernstein) Test: Perfusing the distal esophagus with 0.1 normal HCl alternating with saline with the patient unaware of which solution is being used tests the sensitivity of the esophagus to pain, but does not test reflux directly. The test is most useful in discriminating between several chest discomforts or in determining an esophageal origin for

atypical pain. Early reproduction of the patient's typical pain eliminates most false-positive results, but a negative test does not exclude reflux. This test can be done safely and inexpensively in any office setting.

The Standard Acid Reflux Test (SART): In this test, a pH probe is positioned 5 cm above the LES (located by endoscopy or manometry) after 300 ml of 0.1 N HC1 have been put into the stomach. In four positions the patient performs four maneuvers (deep breathing, coughing, Valsalva, and inspiration against a closed glottis) for a total of 16 possible reflux episodes. If the pH drops below 4 on three or more occasions, the test is considered positive. Preloading the stomach with acid increases the sensitivity of the test to 84%, but does produce up to 37% false-positive results. Without acid loading, the test's sensitivity is only 40%, but the specificity is 99%.

Prolonged pH Monitoring: An outgrowth of the SART, pH probe monitoring for up to 24 hours reduces the sampling error inherent in the SART, allows detection of reflux while the patient more closely simulates his normal activities, and provides a way to quantitate reflux. This is the most sensitive and specific test of reflux, but misleading results can be obtained if the patient has an esophageal stricture or refluxes alkaline material. While

this test is currently reserved for diagnostic challenges, it is hoped that with the development of lightweight ambulatory equipment and computer interpretation our understanding and diagnosis of reflux will advance substantially in the next few years.

Gastroesophageal Scintigraphy: For this test the stomach is preloaded with liquid ""Te-sulfur colloid, and a reflux index is calculated as the percentage of scintillation counts over the lower esophagus compared with the original number of counts over the stomach. This test has the advantage of being tubeless and utilizing equipment available in most hospitals. The sensitivity of scintigraphy is approximately 60%, but the specificity is 95%; a positive test is therefore helpful, but a negative study does not exclude significant reflux."

Esophageal Manometry: Manometry can determine the resting LES pressure and whether the sphincter relaxes appropriately with swallowing, as well as the amplitude, duration, and coordination of muscular contractions

TABLE 3

One (of many) possible schemes for sequencing diagnostic tests for reflux that would be appropriate for the general physician. Test order is approximately from the simplest to do (or obtain) to the most specialized test and items 1-6 are roughly in order of relative cost and degree of invasiveness. Optimal testing uses as few tests as possible to confirm the diagnosis and/or exclude alternative diagnoses.

- 1. History
- 2. Empiric therapy and/or:
- 3. Bernstein test
- 4. UGI (with reflux maneuvers)
- 5. Seintisean
- 6. Endoscopy
- *7. SART, ± manometry
- *8. 24-hour pH study

*Not universally available

^{**}Specificity refers to the ability to exclude the diagnosis when the test is negative.

in the body of the esophagus to document esophageal spasm. However, there is too much overlap between the sphineter pressures measured in symptomatic patients and controls for manometry to discriminate refluxers from normals unless the LES pressure is extremely low, e.g., less than 10 mm Hg. Manometry is a relatively insensitive (60%) but fairly specific (85%) test in predicting reflux.⁵

Esophagram: Fluoroscopy and stress maneuvers combined with a persistent radiologist increase the frequency with which reflux can be detected, but the average sensitivity is only 40%, with a specificity of 85%. Nevertheless, when reflux is demonstrated radiographically, it is likely to be significant. An esophagram can show peristaltic activity, gross mucosal injury, hiatal hernia, and is often a more sensitive test than endoscopy for detecting subtle luminal narrowing. However, a normal esophagram never excludes clinically significant reflux.

Endoscopy: Endoscopy is an insensitive way to detect mild reflux esophagitis, but it can specify the extent of injury, and rule out other causes of epigastric pain. Significantly, up to 40% of patients with chronic reflux will have no gross lesions at esophagoscopy. Endoscopy is the most expensive and uncomfortable of the reflux tests, but it is by far the most accurate way to detect erosions, linear ulcers, friability, or esophageal mucosal metaplasia (Barrett's esophagus).

Treatment of Reflux Esophagitis

First Level Therapy: A brief explanation of how reflux occurs helps patients eliminate those habits and foods that promote or aggravate it. Most patients have a healthy respect for the potency of stomach acid and easily grasp the implications of a "bad valve" between the stomach and the sensitive lining of the esophagus. Experience will have taught many patients to avoid certain foods, bending, lifting, and reclining after eating. On the other hand, it is common for patients to fail to make the

TABLE 4
Treatment of Reflux Esophagitis

First Level Therapy

Elevate head of the bed 6-8 inches on blocks

Dietary modifications:

Eat slowly

Eat in an upright position Eat nothing three hours before

going to bed

Avoid lying down several hours after eating

Stop smoking

Antacids or Gaviseon

Achieve ideal weight

Second Level Therapy

First level therapy plus one or more of the following:

Bethanechol

Metoclopramide

 H_2 blocker

Third Level Therapy

Anti-reflux surgery
Angelchik device—should be
done only in a research setting
Collagen implant—experimental

association between their symptoms and excess weight, smoking, and eating habits.

Some foods, such as chocolate, fats, alcohol, and mints decrease LES pressure. Other foods that often cause typical pain, but do not lower the LES pressure or directly injure the esophageal mucosa, are citrus juices, tomato products, spicy foods, and coffee. These only need to be avoided if they cause discomfort.

Talking patients into elevating the head of the bed 6-8 inches on blocks usually requires some salesmanship by the physician, but an angled bed is far more effective than using pillows to prop the torso up. The evidence supporting this practice is as good or better than that for drugs commonly used in treating reflux esophagitis.

Antacids are the backbone of first level treatment because they neutralize gastric acid, augment LES pressure, and are ubiquitous. However, experimental proof that antacids are superior to placebo remains elusive. * Gaviscon TM (Marion Labora tories) combines the action of a weak antacid with alginic acid. Neither ingredient is capable of increasing the LES pressure, but studies have shown that Gaviscon reduces the number and duration of reflux episodes. Alginic acid is unique in its reaction with saliva to form a viscous foam that floats on top of the gastric contents where it may impede reflux or be itself refluxed into the distal esophagus. Gaviscon is probably no better than antacid therapy.

Second Level Therapy: First level therapy successfully controls reflux symptoms in about 75% of patients. 10 Second level therapy consists of all elements of first level treatment with the addition of one or more of the following:

1) Bethanechol, a cholinergic agonist, taken as 25 mg, 30-60 minutes AC increases LES pressure and improves esophageal acid clearance. Patients with asthma, COPD, heart disease, peptic ulcer disease and obstructive uropathy are poor candidates for this drug.

2) Metoclopramide, a dopamine antagonist, increases LES pressure, promotes gastric emptying, and is an antiemetic. The usual dose is 10 mg 30 minutes AC and HS, but can be increased if restlessness, anxiety, insomina, and exrapyramidal reactions do not develop.

3) Cimetidine and ranitidine are histamine H₂ blockers that decrease all phases of gastric acid secretion without influencing the LES.

Studies evaluating the effect of drugs on symptoms, antacid use, and the endoscopic appearance of the esophagus tend to support the usefulness of bethanechol, metoclopramide, and H₂ blockers, but none of these drugs has been conclusively shown to promote healing of esophagitis and the long-term conse-

quences of chronic use are not known."

Some severely symptomatic patients may require second level therapy acutely, but may do well on first level therapy chronically.

Third Level Therapy: Only the 5-10% of reflux patients who fail to respond to aggressive medical therapy become candidates for surgery. Surgery should be considered for refractory symptoms and for complications that cannot be easily controlled (aspiration, stricture, etc). Less established treatments for refractory reflux, such as the Angelchik device and the still experimental endoscopic esophageal implant technique should be further restricted to patients who have failed surgical treatment or who present an unacceptably high surgical risk.

Inti-reflux Surgery: Whether the anti-reflux operation should be a Nissen fundoplication, Hill transabdominal gastropexy, or Belsey transthoracic fundoplication is probably less important than the choice of surgeon to perform it." Anti-reflux surgery has been shown to relieve symptoms for most patients for 5-10 years with some deterioration thereafter.5 Most patients have transient dysphagia and gas-bloat, but many cannot belch or vomit for years after surgery. Nonetheless, most find these symptoms preferable to intractable reflux. The drawbacks of surgery are the general anesthestic, operative morbidity and mortality (0.2 1.6%), approx imately 10 day hospitalization, and cost.

Angelchik Device: The Angelchik device is a C-shaped, silicone-filled prosthesis tied around the distal esophagus at laparotomy. It maintains the LES in the abdomen (reducing a hiatal hernia when present) and raises the LES pressure. First placed in humans in 1973, early reports sug gested that this was a very successful, technically simple procedure to control reflux and more than 15,000 have been installed. As the number of devices placed has increased, so have the number and spectrum of complications.

Mild and transient dysphagia and gas bloat occur in up to 42% of patients; however, the frequency of far more serious problems related to migration of the device into the mediastinum, the lumen of the esophagus, and pelvis is not known." As complications can occur years after the procedure, the ultimate safety of this device will not be known for years. It has been recommended that placement of this prosthesis be limited to an investigational setting where adequate follow up can be provided. Conventional surgical procedures in competent hands have a lower failure rate and fewer complications.1

Endoscopic Collagen Implants: Using endoscopic techniques that were developed for esophageal variceal sclerosis, it is possible to inject inert material into the submucosa of the distal esophagus to mechanically augment the strength of the LES. This technique has been successfully used to reverse surgically induced reflux esophagitis in an animal model without evident dysphagia or other complications. Because of the encouraging results of the animal studies conducted over four years, a pilot study is currently underway in humans.¹¹

Conclusions

Symptomatic reflux is extremely common and most patients do not require formal testing to make the diagnosis. Patients who do not present typically, who are likely to have refluxinduced complications, or who do not respond well to first level therapy may require additional evaluation to confirm or quantitate the condition, to assess tissue injury, or to exclude other diagnoses. Diagnostic tests vary in cost, availability, invasiveness, and do not all detect the same thing. The choice and sequencing of tests and therapy has to be individualized and the timing and interpretation of tests continue to depend upon the art, knowledge, and intuition of a well trained, conscientious physician.

REFERENCES

- Nebel OT, Fornes MF, Casteff DO: Symptomatic gastroesophageal reflux: Incidence and precipitating factors. Am J Dig Dis, 21:953-956, 1976.
- Dodds WJ, Hogan WJ, Miller WN: Reflux esophagitis. Am J Dig Dis, 21:49-67, 1976.
- 3. Dodds WJ, Hogan WJ, Helm JF, Dent J: Pathogenesis of reflux esophagitis. Gastrocaterol, 81:376-394, 1981.
- Dodds WJ, Dent J, Hogan WJ, Helm JF, Hauser R, Patel GK, Egide MS: Mechanisms of gastroesophageal reflux in patients with reflux esophagitis. N Engl J Med, 307:1547 1552, 1982.
- Richter JE, Castell DO: Gastroesophageal reflux: Pathogenesis, diagnosis, and therapy. Ann Intern Med, 97:93:103, 1982.
- Behar J, Bianeani P, Sheahan DG: Evaluation of esophageal tests in the diagnosis of reflux esophagitis. Gastrocuterol, 71:9-15, 1976.
- Castell DO, Levine SM: Lower esoph ageaf sphineter response to gastric alkalinization: A new mechanism for treatment of heartburn with antacids. Ann Intern Med, 74:223:237, 1971.
- Graham DY, Patterson DJ: Double blind comparison of liquid antacid and placebo in reflux esophagitis. Gastroenterol, 82:1072, 1982 (abstract).
- Malmud LS, Charkes ND, Littlefield J, Reilley J, Stern H, Rosenberg R, Fisher RS: The mode of action of alginic acid compound in the reduction of gastroesophageal reflux. J Nuc Med, 20:1023 1028, 1979.
- Frazier JS, Fendler KJ: Current concept in the pathogensis and treatment of reflux esophagitis. Clinical Pharmacy, 2:546-557, 1983.
- Mellow M: Management of esophageal complications. In: Diseases of the Esophagus. Cohen S, Soloway RD, eds. Churchill Livingstone: New York, 1982:215-238. In: Diseases of the esophagus, p. 215-237.
- Benjamin SB, Kerr R, Cohen D, Motaparthy V, Castell DO: Complications of the Angelchik antireflux prosthesis. Ann Intern Med, 100:570-575, 1984.
- O'Connor KW, Madison SA, Smith DJ, Ransburg RC, Lehman GA: An experimental endoscopic technique for reversing gastroesophageal reflux in dogs by injecting inert material in the distal esophagus. Gastrointest Endose, 30:275-280, 1984.



Trust. It's one of the biggest reasons your patients come to you. They trust your judgment. They know you care. They look to you for guidance. So you take the physician-patient relationship very seriously. And we do, too.

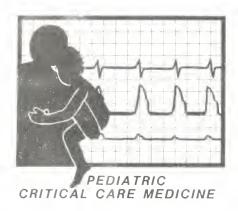
Since 1900, Hook's has been a name you could depend on for health care services. And in the growing field of home health care, Hook's Convalescent Aids Centers offer a world of convalescent aids and supplies for rent or purchase. Every Convalescent Aids Center is staffed by certified consultants and fitters to give your patients the care and attention you want them to have. Of course we process Medicare and Medicaid claims. And we offer home delivery and set up.

When it comes to personalized service by trained professionals, you can recommend Hook's Convalescent Aids Centers with confidence. Wherever you are, Hook's has a regional Convalescent Aids Center near you.





Pediatric Head Injury



A Serious Head Injury
Can Be Fatal. Of
Critical Concern
Is How Children
Hospitalized with
Such Injuries Are
to Be Examined,
Monitored and
Treated . . .

Dr. Turner is Medical Director, Neuro Critical Care, Methodist Hospital of Indiana, Indianapolis.

Correspondence: Indianapolis Neurosurgi cal Group, Inc., 1633 N. Capitol Ave., Suite 408, Indianapolis, Ind. 46202. MICHAEL S. TURNER, M.D. Ind anapolis

RAUMA IS THE NUMBER ONE killer of children 1-14 years of age. A recent review described some degree of neurological injury in 74% of children admitted with the diagnosis of trauma. Of the children with head injury (III), 45% had a severe HI and mass lesions were found in 26%. Eighty-six per cent of deaths were due to neurological injury and all but two of the children who died had some degree of HL Improvements in survival of children with HI over the last several years is attributable to improvements in EMS systems, resuscitation, transport, diagnosis, and intensive care. A Prognosis for children is also better than for adults with similar degrees of injury.4

That ehildren are not just small adults is a recurrent theme in pediatric care. Never is this more true than with pediatric HI. The child's proportionately larger head, developing cranial vault, and immature but rapidly developing central nervous system contribute to differences in pathophysiology, neurological examination, and treatment when compared to adults.

I will discuss these differences as well as guidelines for initial assessment and transport. I will restrict my remarks to significant HI, i.e., children who do not return to normal within 60 minutes of injury.

Mechanisms of Injury

Patients with a IH sustain two injuries. The primary injury is caused by impact. It cannot be altered by treatment, only by prevention. Secondary injury includes insults after the impact

which can be altered or prevented by optimal emergency and intensive care.

Children less than 6 months suffer a characteristic brain injury. Tears in the subcortical white matter of the temporal and frontal lobes are seen. Chronic subdural hematomas are restricted to this age. Infants with an open fontanelle lack a solid eranial vault so that the brain receives the complete force of injury. These children are unable to support their heads, making them more susceptible to rotational and shearing forces. A worse prognosis is seen in children with an open fontanelle than in any other age group.

Children beyond 6 months sustain injuries similar to adults (subdural, epidural, intracerebral and subarachnoid hemorrhages, concussions and contusions) with the addition of hyperemic cerebral swelling. In this syndrome, increases in intracranial pressure (ICP) occur, not due to inerease in water content of the brain. as in the adult, but to increase in cerebral blood flow and blood volume. This observation supports the use of hyperventilation, which decreases cerebral blood flow, relative to mannitol, which increases cerebral blood flow and volume, as the primary treatment of increased ICP in this group of children.6,3

Resuscitation

Initial treatment of the head-injured child is directed at preventing secondary injury caused by hypoxia, hypercarbia, hypotension, increased ICP, and intracranial hemorrhage. The principles of resuscitation are identical to those of the multiply injured child or adult. Foremost is the maintenance of an adequate airway, oxygenation, ventilation, and organ perfusion, control of hemorrhage, rapid assessment of in-

	TABLE 1	
Glas	sgow Coma Score	
EYE OPENING	Spontaneous	.]
	To Voice	3
	To Pain	2
	None	1
VERBAL	Oriented	5
RESPONSE	Confused	4
	Inappropriate Words	3
	Incomprehensible	
	Words	2
	None	1
MOTOR	Obeys Command	6
RESPONSE	Localizes Pain	5
	Withdraw (Pain)	4
	Flexion (Pain)	3
	Extension (Pain)	2
	None	1
TOTAL COMA SC	ORE	3-15

Chil	dren's Coma Score	
OCULAR RESPONSE	Pursuit Extra Ocular Muscles (EOM) Intact,	4
	Reactive Pupils Fixed Pupils or EOM	3
	Impaired Fixed Pupils and EOM	2
	Paralyzed	1
VERBAL RESPONSE	Cries Spontaneous	3
	Respirations	2
	Apneic	1
MOTOR RESPONSE	Flexes & Extends Withdraws From	1
	Painful Stimuli	3
	Hypertonie	2
	Flaccid	1
TOTAL CHILDRE	N'S COMA SCORE	3-11

juries, and avoidance of additional injury during extrication and transport.

A basic tenet of multiple trauma care is that intracranial bleeding never causes hypotension. The infant is again an exception. An infant can lose enough blood into a subdural, epidural, or subgaleal hematoma to cause hypovolemia.

The presence of an unstable cervical spine fracture is assumed in comatose HI patients. Cervical spine fractures are rare in children before puberty. Quadriplegia and paraplegia without fracture is seen occasionally. Rotary subluxation of the axis and atlantoaxial dislocation are more frequently seen in children. Ligamentous disruption may lead to late instability of the spine. Spinal cord injury is suspected when the motor injury seems greater than the cerebral injury. Cervical spine lateral x-ray is essential early in the emergency room assessment of III to rule out fracture, dislocation, or soft tissue injury. If any question of abnormality exists, an unstable spine is assumed and referral for definitive evaluation indicated.

Neurological Assessment

History, as always, is a valuable part of the assessment. It is helpful to gather information about the accident. Details such as speed of the auto, location in the car, or height of fall and type of impact help define the force the cranium received. Condition of the patient at the scene including length of time from accident to transport, difficult extrication, hypotension at the scene or during transport, cyanosis or airway obstruction, aspiration of vomitus or cardiorespiratory arrest identifies secondary insults. Most important is assessment of level of consciousness during prehospital care, and if seizures occurred. A history of neurological disease, medical problems. or ingestion of medication or alcohol should be identified.

Neurological examination of the head-injured child must be performed rapidly, consistently, and repeatedly. Examination of the head includes looking for lacerations, puncture wounds, facial fractures, airway obstruction, hemotympanum, cerebrospinal fluid (CSF) otorrhea or rhinorrhea, and

subgaleal hematoma or contusion. Cranial nerve examination includes as a minimum pupils, their reaction both consensual and direct to light, visual acuity (count fingers), and extraocular motion either to command or by the dolls eye or caloric reflexes. Ophthalmoscopy should be attempted as the presence of retinal hemorrhages is occasionally the only positive physical finding in a shaken child or chronic subdural hematoma. Facial asymmetry and sensation should be tested if possible. The lower cranial nerve exam includes gag and cough response: respiratory rate and pattern should be noted. The motor exam identifies weakness or lack of extremity movement, and can be difficult if long bone fractures or intravenous lines inhibit movement.

Level of consciousness is assessed in the child over 3 years of age by the Glasgow Coma Score (GCS, Table 1). Several qualifications must be understood. A patient with hemiparesis or different motor exam on each side receives the value for the best side. Intubated patients receive the best estimated value for verbalization. For example, a patient who is mouthing questions around an endotracheal tube has a verbal score of at least 4 (of 5). A patient who has no arousal to deep painful stimulus has a verbal score of 1 whether intubated or not. Many centers place a "T" after the verbal score to note intubation.

The GCS obviously does not work in the infant or toddler. A normal newborn infant can score no higher than 4 (of 6) on the motor scale and 2 (of 4) on the verbal score. Parents of toddlers can attest that following commands is at best sporadic. Raimondi developed a Children's Coma Score which quantifies level of consciousness in the child less than 3 years. It is new and has not received the GCS's extensive validation (Table 2).

It is most important to detect early any change in neurological exam. Assessment of level of consciousness and cranial nerve function must be repeated every 5-10 minutes during the first several hours after injury and then at least hourly. Assessment should not take an experienced examiner more than one minute.

Diagnostic Studies

A CBC, electrolytes, glucose, BUN, creatinine, arterial blood gas, and type and cross match should be drawn on patients with a significant HI. Blood alcohol level and/or toxicology screen should be considered. If the patient is to be transferred to another institution, only tests with results available at the time of transport should be run.

In addition to cervical spine x ray, chest x-ray is essential to evaluate intrathoracic injury and endotracheal, chest tube, or central intravenous line placement. ALL OTHER FILMS ARE ELECTIVE AND HEAD COMPUTED TOMOGRAPHIC (CT) SCANNING OR TRANSPORT SHOULD NEVER BE DELAYED TO OBTAIN THEM. Time is of the essence in HI. Suspected long bone fractures can be splinted and the patient transported on a spine board to splint lower spine or pelvis

fractures.

The CT scan of the head is man datory for patients with significant HI. Traumatic lesions are easily demonstrated. Fresh blood appears denser (whiter) than brain on noncontrasted scans. The pattern of blood allows diagnosis of subdural, epidural, intracerebral, and subarachnoid hemorrhage. Cerebral contusions and white matter shear injuries show a characteristic pattern of punctate hemorrhages. Occasionally, tumor, abscess, or other lesion will appear as the unsuspected cause of the aecident. Facial fractures and most vault and basilar skull fractures can be seen on special views. Significant neurological dysfunction can be present in a patient with a "normal" CT scan. The occurrence of delayed intracerebral hematoma or hydrocephalus is frequent enough that repeat scanning after 12-24 hours is often indicated. The 24-hour availability of CT seanning is a must in any hospital caring for patients with significant III.

The decision to obtain a scan is made on an individual basis. Some guidelines used are: (1) coma score less than 13 (of 15); (2) seizure after the injury; (3) focal neurological deficit; (4) depressed skull fracture; (5) CSF otorrhea or rhinorrhea; (6) documented loss of consciousness of greater than 15-30 minutes; and/or (7) coagulopathy. This list is not inclusive. If a child is not completely normal several hours after injury, a scan should be considered, especially in an infant or toddler. The above list also approximates indications for neurosurgical evaluation, as the object of the scan is to rule out a surgical lesion and define extent of cerebral injury.

With CT scanning, the patient must hold still for up to 10 minutes. Children may require sedation and often neuromuscular paralysis unless they are deeply comatose. The presence of a physician comfortable with the use of intravenous anesthesia and muscle relaxants in pediatric patients, and with securing and maintaining the

pediatric airway, is mandatory. Small doses of Valium or Demerol/Phenergan/Thorazine cocktail may work, but respiratory depression is a risk.

Treatment

Prevention of secondary injury (cerebral and brainstem ischemia) from elevated ICP and its causes is the major therapeutic goal in severe pediatric HI. Surgical treatment includes evacuation of all significant hematomas. Placement of an ICP monitoring device has become standard for all children with a severe HI (GCS < 6).

Medical control of increased ICP in the pediatric intensive care unit is a complex topic to be covered in future months. Basic guidelines include elevating the head of the bed at least 30 degrees to decrease eerebral venous blood volume and pressure. A patent airway, best assured via endotracheal tube, allows effective oxygenation and hyperventilation to an arterial pCO, of 28 mm Hg using a ventilator tidal volume of 15 cc/kg. It may be necessry to lower the pCO, to 20-22 mm Hg especially when hyperemic swelling is present. Lasix (0.7mg/kg) intravenously may lower ICP without an increase in cerebral blood flow. Mannitol should probably be avoided in the first 24 hours unless measured ICP cannot be controlled by hyperventilation. A mannitol dose of 0.25-0.5 grams/kg intravenously will return most ICP elevations to normal (5-15 mm Hg). Patients without an ICP monitor should receive mannitol for neurologic deterioration. Drainage of CSF decreases intracranial volume and ICP if a cerebral intra ventricular catheter is in place.

Intravenous fluids should run at ½-2-¾ calculated maintenance using D5W ½ normal saline. Dextrose without electrolytes is contraindicated. Euvolemie dehydration is the goal, assessed by monitoring serum sodium, osmolarity, and intraeardiac filling pressures. The use of steroids in HI is controversial. There exists a subgroup of patients who are improved by

steroids, vet multiple randomized studies have not shown improved outcome, implying the subgroup is small and undefined. If used a high dose of steroid (dexamethasone 1.0 mg/kg day) is given for three days. Barbiturates are effective in lowering intracranial pressure by decreasing cerebral blood flow and metabolic rate of the brain. Complications include respiratory depression, myocardial depression, decreased peripheral vascular resistance, bone marrow suppression, and loss of clinical neurologic signs on exam. Physicians must be familiar with these problems and equipped to treat them. Barbiturates are used only when conventional therapy has failed and ICP is directly measured.

Family Support

A severe HI is devastating to patient and family. Family members require support to help them understand the extent and the significance of the in juries. It is sometimes difficult for them to understand the inexactness of our prognostic ability and reasons for procedures and complications. A continuing effort is made by all staff members to communicate with the family. Early involvement of social services and chaplainey is imperative. The local physician should be involved prior to referral center discharge for continuity of care.

Summary

Pediatric HI is a major cause of death and disability. Differences in pathophysiology and treatment exist between children and adults with similar injuries. Improvement has been made in the management and outcome of HI, especially pediatric HI. Intensive care of these children demands a team approach involving specialists in neurosurgery, emergency medicine, intensive care, anesthesia, radiology, and primary care. The key to improved survival lies in rapid resuscitation, stabilization, and transfer if indicated

to a facility experienced and equipped to handle these critically ill children.

REFERENCES

- Walker ML, Storrs BB, Mayer T: Factors affecting outcome in the pediatric, patient with multiple trauma. Child's Brain, 11:387, 1984.
- Bruce DA, Schut L, Bruno LA, Wood JH, Sutton LA: Outcome following severe head injuries in children. J Neuro neg, 45:679, 1978.
- Langfitt TW, Gennarelli TA: Can the outcome from head injury be im proved? J Neurosury, 56:19, 1982.
- Mahoney WJ, D'Souza BJ, Haller JA, et al: Long term outcome of children with severe head trauma and prolonged coma. Pediatries, 71:756, 1983.
- Raimondi AJ, Hirschauer J: Head in jury in the infant and toddler. Child's Brain, 11:12, 1984.
- Bruce DA, Alavi A, Bilaniuk, et al: Diffuse cerebral swelling following head injuries in children: The syndrome of "malignant brain edema." J Neurosury, 54:170, 1981.
- 7. Bruce DA, Raphaely RC, Goldbert AI, et al: Pathophysiology, treatment and outcome following severe head injury in children. Child's Brain, 5:174, 1979.

INDIANA MEDICAL BUREAU

1010 East 86th St.—72 Winterton Indianapolis 46240 844-7933

A Licensed Employment Agency Specializing in Medical Personnel

Since 1952

Cochlear Implants as Sensory Aids for Deaf Children



External coil and microphone worn by young implant recipient.

From the Dept. of Otolaryngology Head and Neck Surgery, Indiana University School of Medicine, Indianapolis.

Correspondence: Richard T. Miyamoto, M.D., Dept. of Otolaryngology Head and Neck Surgery, Riley Hospital for Children, Suit A 56, 702 Barnhill Drive, Indianapolis, Ind. 46223.

Acknowledgments: This investigation was supported by grants from the James Whit comb Riley Memorial Association, Indiana Luons, and the Indiana University Foundation DeVault Otologic Research Fund.

RICHARD T. MIYAMOTO, M.D. AMY J. McCONKEY, M.S. WENDY A. MYRES, M.A.T. MOLLY L. POPE, M.A.T. GARY L. GROOM, Ph.D. MARSHA E. HARMON, R.N.

COCHLEAR IMPLANT TEAM was established in 1979 at the Indiana University Medical Center. Since then 26 deaf adults have received a House Urban single channel device. Over 300 profoundly deaf adults have now been implanted with this device in the national clinical trials program sponsored by the House Ear Institute, Los Angeles, Calif.

Experience to date with the cochlear implant in a highly selected adult deaf population has demonstrated signifi cant benefit with minimal risk. Although the cochlear implant does not provide normal speech discrimination, conversational speech and environmental sound stimuli are detected. Patients effectively use the low frequency information and temporal and loudness cues processed by the implant to improve their speechreading skills and to interact in an auditory environment. No surgical complications or adverse effects have been observed in our patients.

With this highly favorable background experience, the decision was made to join Dr. William F. House in an investigational protocol to evaluate the cochlear implant as a sensory aid for selected deaf children. This in-depth study seeks to identify those characteristics that may allow us to better predict which deaf children

will profit most from implantation. Our goal is to determine what contributions the implant may make to the development of speech, language, and academic skills.

The Surgical Procedure

The cochlear implant procedure involves the surgical placement of an implantable internal receiver consisting of an induction coil and two electrodes above and behind the auricle deep to the sealp. The surgery is accomplished through a post-auricular incision. A mastoidectomy is performed and the middle car is entered through the facial recess leaving the bony ear canal intact.

The anterior lip of the round window niche is gently removed and the basal turn of the cochlea is opened just anterior to the round window membrane. The active electrode is inserted 6 mm into the scala tympani of the cochlea and the ground electrode is placed into the attic of the middle ear or under the temporalis muscle. The incision sites are allowed to heal for approximately two months prior to fitting the external device.

The External Device

In addition to the surgically implanted internal receiver, the cochlear implant equipment includes an external device, consisting of a microphone, a stimulator unit and the external induction coil. The microphone picks up sound and passes this energy to the stimulator unit. The stimulator unit emits a 16 kHz carrier wave, which is amplitude modulated by the signal from the microphone. The unit is set so the carrier amplitude is just below the patient's electrical threshold for the carrier.

				TABLE 1	
Subjects	[nder	18	Receiving Cochlear Implai	nt

Subject	Sex	Etiology	Age at deafness	Age at implant	Date o <u>f_</u> implant	Communication mode
Т.Т.	F	Meningitis	6	11-6	5/31/83	oral
M.K.	M	Mondini deformity	birth	4-5	2/3/84	cued speech
B.C.	M	Meningitis	1-6	10-6	2/29/84	total
H.C.	M	Meningitis	6	6-4	3/16/84	oral
S.M.	F	Meningitis	10 mo	11-4	3/22/84	total
D.P.	F	Meningitis	10 mo	16-0	6/1/84	total
L.W.	M	Unknown	9 mo	11-11	7/6/84	oral

The signal produced by the stimulator unit is sent by a wire to the external coil and transmitted across the skin as a magnetic signal to the internal coil. The signals create electrical potentials between the two implanted electrodes, which vary in intensity depending on the level of sound detected by the microphone. The temporal patterns of the sound are also duplicated in the electrical signal. This electrical field will then stimulate any remaining VIIIth nerve fibers.

Selection of Candidates

A critical review of patients implanted to date in the national clinical trial demonstrates that nearly all etiologies of deafness may be appropriate for cochlear implantation. At least some VIIIth nerve fibers that can be stimulated electrically have been noted to be present. One possible exception is the Michel deformity in which there is a congenital agenesis of the cochlea. Intracochlear bone formation secondary to meningitis has not proven to be a deterrent to successful cochlear implantation. (In cases TT and HC the scala tympani of the cochlea was completely obliterated by bone secondary to meningitis; however, by drilling out this area electrode contact with perilymph was gained and successful electrical stimulation was accomplished.)

Current selection criteria for entry into the pediatric cochlear implant program:

- Children age 2 to 17 years. (After age 2 years the mastoid is sufficiently developed to permit successful implantation.)
- Profound sensory hearing loss in excess of 95 dB hearing level (HL) or greater in both ears.
- Demonstrated inability to benefit from the use of powerful conventional hearing aids. (This may require a sixmonth hearing aid trial.)
- Absence of gross personal malad justment as demonstrated by appropriate psychological tests and interviews.
- Consent to complete an extensive rehabilitation program.

Additional considerations:

- A supportive home situation and realistic parental expectations are of extreme importance.
- The child's school must provide an auditory environment to maximize the benefits of the implant.
- The child himself must be a willing participant.
- The child's age must be considered. Adolescence is a particularly difficult time for a young person to accept a new sensory aid, especially one which is visible and whose external appearance resembles a body hearing aid.

Subjects

To date, seven profoundly deaf subjects under the age of 18 years have received a cochlear implant at the James Whitcomb Riley Hospital for

Children. These subjects range in age from 4-5 to 16-0 years, with a mean age of 10-0 years. Four of the subjects are male and three are female. Three of the subjects use oral communication as their primary means of communication, three use total communication (simultaneous speech and sign language), and one subject uses cued speech. Five of the subjects were either born deaf or deafened within the first year of life. Two of the subjects were deafened by meningitis after oral/aural language had developed (Table 1).

Results

A bilateral profound sensorineural hearing loss is requisite for entry into the pediatric cochlear implant program. Hearing aid performance in both ears must be poorer than expected implant performance based on norms established in current implant wearers. Table 2 lists the profound levels of sensorineural impairment in the ears selected for implantation (preoperative warble tone thresholds). Table 3 lists the preoperative warble tone thresholds with hearing aids in the ear receiving an implant and also for the contralateral ear. The ear demonstrating poorer hearing aid performance is chosen for implantation unless a pathological lesion is detected on preoperative radiographs which would suggest that electrode placement may be difficult.

Following surgery this sample of

		-	TA Unaided Warbl g Cochlear Imp				
			Wa		esholds (dB S ncy (Hz)	PL)	
Subjects	Ear	250	500	1000	2000	3000	4000
T.T.	(R)	NR	NR	NR	NR	NR	NR
M.K.	(R)	NR	NR	NR	NR	NR	NR
B.C.	(L ₃)	115.5	NR	NR	NR	NR	NR
H.C.	(R)	NR	NR	NR	NR	NR	NR
S.M.	(R)	NR	NR	NR	NR	NR	NR
D.P.	(R)	110.5	116.5	NR	NR	NR	NR
L.W.	(R)	NR	NR	NR	NR	NR	NR
	Preoperati		ble Tone Thres Non-implanted	Ear) for Subjearble Tone Th	ects Under Age resholds (dB S	18	
				Freque	ney (Hz)		
Subjects	Ear	250	500	1000	2000	3000	400

				1			
Subjects	Ear	250	500	1000	2000	3000	4000
Т.Т.	(R)	84	NR	NR	NR	NR	NR
		(75)	(88)	(NR)	(NR)	(NR)	(NR)
M.K.	(R)	84	104	NR	96	NR	NR
		(84)	(104)	(NR)	(96)	(NR)	(NR)
B.C.	(E)	66	86	84	101	NR	NR
		(76)	(95)	(96)	(NR)	(NR)	(NR)
H.C.	(R)	NR	NR	NR	NR	NR	NR
		(NR)	(NR)	(NR)	(NR)	(NR)	(NR)
S.M.	(\mathbf{R})	NR	NR	NR	NR	NR	NR
		(72)	(72)	(77)	(104)	(NR)	(NR)
D.P.	(R)	82	82	80	NR	NR	NR
		(79)	(80)	(71)	(NR)	(NR)	(NR)
L.W.	(R)	90	94	68	NR	NR	NR
		(7.1)	(90)	(74)	(NR)	(NR)	(NR)

	Warble Tone Thresholds (dl		BLE 1 Cochlear I <mark>mpl</mark> a	int for Subjects	s Under Age 18	3
		Wa	arble Tone Thi Freque	resholds (dB S ney (Hz)	PL)	
Subjects	250	500	1000	2000	3000	4000
Т.Т.	.59	64	54	52	55	56
M.K.	6.5	67	55	64	66	64
В.С.	(56)	67	55	58	59	66
П.С.	68	60	56	59	63	66
S.M.	65	66	59	65	61	63
D.P.	in process					
L.W.	in process					

pediatric cochlear implant recipients demonstrated mean warble tone thresholds between 54 and 68 dB SPL (*Table 4*). This is comparable to adults who range from 57 to 64 dB SPL.

Rehabilitation/Habilitation

The rehabilitative/habilitative process must begin with an introduction to sound and its parameters. Even postlingually deafened patients (deafened after a speech and language base have been established) consistently report that the electrical signals received through the cochlear implant differ from their prior recollections of sound. If these concepts have been previously learned, the rehabilitation process is more rapid and the potential benefits may be greater. The prelingual subjects take longer to acclimate to sound and may have considerably more difficulty in integrating the sound into their daily life experience. However, electrical stimulation of residual auditory neurons in prelingually deafened subjects does provide useful information, and the electrical thresholds are comparable to those obtained in the postlingually deaf.⁶

Conclusion

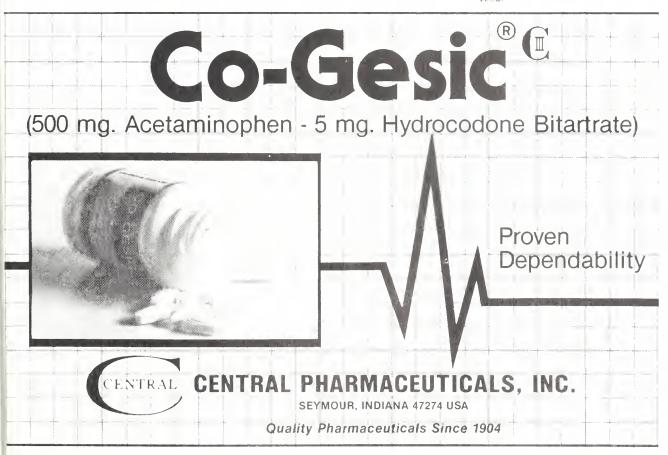
Cochlear implantation shows great promise in the effort to conquer deafness. When coupled with an effective aural rehabilitation program, the cochlear implant is a valuable sensory aid that assists in speechreading and provides environmental contact.

Initial experience with seven children who have received a cochlear implant demonstrates that the procedure can be safely accomplished in the pediatric population. Children receive timing and intensity information at similar thresholds as adult implant subjects. This long-term in-

vestigation seeks to determine whether the auditory information processed by the cochlear implant can improve the acquisition of language and enhance the education of deaf recipients.

REFERENCES

- Miyamoto RT, Gosset SK, Groom GL, Kienle ML, Pope ML, Shallop JK: Cochlear implants: An auditory prosthesis for the deaf. J Indiana State Med Assoc, 75:174-177, 1982.
- Berliner KI: Risk vs. benefit in cochlear implantation. Ann Otol Rhinol Laryngol, 91 (Suppl):90-98, 1982.
- McConkey AJ, Kienle ML, Osberger MJ, Miyamoto RT: Speech tracking performance in single channel cochlear implant subjects. In process.
- Eisenberg LS, House WF: Initial experience with the cochlear implant in children. Ann Otol Rhinol Laryngol, 91 (Suppl):67-73, 1982.
- 5. House WF: Personal communication.
- Eisenberg LS: Use of the cochlear implant by the prelingually deaf. Ann Otol Rhinol Laryngol, 91 (Suppl):62-66, 1982





"...Your financial security specialists are on call"

American Physicians Life believes a physician's financial security deserves specialized attention. That's why our products and services are designed with the doctor in mind. Our comprehensive portfolio of services, including life insurance, professional disability income coverage, qualified plans and tax-deferred annuities, is customized to meet your personal financial planning needs as well as those of your professional corporation.

Let American Physicians Life secure your financial planning program—that's our specialty!

For more information contact: Williams/Townsend Associates 8900 Keystone Crossing, Suite 500 Indianapolis, Indiana 46240 (317) 844-3119

Endorsed by the Indiana State Medical Association



Bates Drive, P.O. Box 281 Pickerington, Ohio 43147 Telephone (614) 864-3900

Toll-free in Ohio, 1-800-282-7515 Toll-free outside Ohio, 1-800-742-1275

BALANCED CALCIUM CHANNEL BLOCKADE!



Low incidence of side effects

CARDIZEM® (diltiazem HCl) produces an incidence of adverse reactions not greater than that reported with placebo therapy, thus contributing to the patient's sense of well-being.

*Cardizem is indicated in the treatment of angina pectoris due to coronary artery spasm and in the management of chronic stable angina (classic effort-associated angina) in patients who cannot tolerate therapy with beta-blockers and/or nitrates or who remain symptomatic despite adequate doses of these agents.

References:

- Strauss WE, McIntyre KM, Parisi AF, et al: Safety and efficacy
 of diltiazem hydrochloride for the treatment of stable angina
 pectoris: Report of a cooperative clinical trial. <u>Am J Cardiol</u>
 49:560-566, 1982.
- Pool PE, Seagren SC, Bonanno JA, et al: The treatment of exercise-inducible chronic stable angina with diltiazem: Effect on treadmill exercise. Chest 78 (July suppl):234-238, 1980.

Reduces angina attack frequency* 42% to 46% decrease reported in multicenter study.

Increases exercise tolerance*

In Bruce exercise test, control patients averaged 8.0 minutes to onset of pain; Cardizem patients averaged 9.8 minutes (P<.005).

CARDIZEM

(diltiazem HCl)

THE BALANCED
CALCIUM CHANNEL BLOCKER

PROFESSIONAL USE INFORMATION



DESCRIPTION

Diltiazem hydrochloride is a white to off-white crystalline powder with a bitter taste It is soluble in water, methanol, and chloroform it has a molecular weight of 450 98. Each tablet of CARDIZEM contains either 3D mg or 6D mg diltiazem hydrochloride for oral administration

CLINICAL PHARMACOLOGY

The therapeutic benefits achieved with CARDIZEM are believed to be related to its ability to inhibit the influx of calcium ions during membrane depolarization of cardiac and vascular smooth

Mechanisms of Action. Although precise mechanisms of its antianginal actions are still being delineated, CARDIZEM is believed to act in the following ways

1. Angina Due to Coronary Artery Spasm. CARDIZEM has been shown to be a potent dilator of coronary arteries both epicardial

and subendocardial. Spontaneous and ergonovine-induced cor-onary artery spasm are inhibited by CARDIZEM.

2 Exertional Angina. CARDIZEM has been shown to produce increases in exercise tolerance, probably due to its ability to reduce myocardial oxygen demand. This is accomplished via reductions in heart rate and systemic blood pressure at submaximal

and maximal exercise work loads
In animal models, dilitazem interferes with the slow inward
(depolarizing) current in excitable tissue it causes excitation-contraction
uncoupling in various myocardial tissues without changes in the configuration of the action potential. Diltrazem produces relaxation of coronary vascular smooth muscle and dilation of both large and small coronary arteries at drug levels which cause little or no negative inotropic effect. The resultant increases in coronary blood Ingative mortified erfect fire solurant more assets in containing blood flow (epicardial and subendocardial) occur in ischemic and nonischemic models and are accompanied by dose-dependent decreases in sys-temic blood pressure and decreases in peripheral resistance Hemodynamic and Electrophysiologic Effects. Like other

calcium antagonists, diltrazem decreases sinoatrial and atrioventricular conduction in isolated tissues and has a negative inotropic effect in isolated preparations. In the intact animal, prolongation of the AH interval can be seen at higher doses.

interval can be seen at higher doses. In man, diltiazem prevents spontaneous and ergonovine-provoked coronary artery spasm. It causes a decrease in peripheral vascular resistance and a modest fall in blood pressure and, in exercise tolerance studies in patients with ischemic heart disease, reduces the heart rate blood pressure product for any given work load Studies to date, primarily in patients with good ventricular function, have not revealed evidence of a negative inotropic effect, cardiac output, ejection fraction, and left ventricular end diastolic pressure have not been affected. There are as yet few data on the interaction of diltiazem and beta blockers. Resting heart rate is usually unchanged or slightly reduced by diltiazem.

have not been affected. There are as yet few data on the interaction of dilitazem and beta blockers. Resting heart rate is usually unchanged or slightly reduced by dilitazem. Intravenous dilitazem in doses of 2D mg prolongs. AH conduction time and AV node functional and effective refractory periods approximately 2D% in a study involving single oral doses of 3DD mg of CARDIZEM. In six normal volunteers, the average maximum PR prolongation was 14% with no instances of greater than first-degree. AV block. Dilitazem-associated prolongation of the AH interval is not more pronounced in patients with first-degree heart block. In patients with sick sinus syndrome, diffuzem significantly prolongs sinus cycle length (up to 5D% in some cases).

Chronic oral administration of CARDIZEM in doses of up to 24D mg/day has resulted in small increases in PR interval, but has not usually produced ahnormal prolongation. There were, however, three instances of second degree. AV block and one instance of third degree. AV block in a group of 959 chronically treated patients.

Pharmacokinetics and Metabolism. Dilitazem is absorbed from the tablet formulation to about 8D% of a reference capsule and is subject to an extensive first pass effect, giving an absolute bioavailability (compared to intravenous dosing) of about 40%. CARDIZEM undergoes extensive hepatic metabolism in which 2% to 4% of the unchanged drug appears in the urine. In which 2% to 4% of the unchanged drug appears in the urine in vitro binding studies show CARDIZEM is 70% to 80% bound to plasma proteins. Competitive upon altered by therapeutic concentrations of digoxin, hydrochlorothazide, phenylbutazone, propranolol, salicylic acid, or warfarin. Single oral doses of 30 nr 120 mp. of CARDIZEM result in defectable plasma. aftered by the apeutic concentrations of digoxin, hydrochlorofinazide, phenylbutazone, proprianoloj, salicylic acid, or warfarin Single oral doses of 30 to 12D mg of CARDIZEM result in detectable plasma levels within 30 to 60 minutes and peak plasma levels two to three hours after drug administration. The plasma elimination hall-life following single or multiple drug administration is approximately 3 5 hours. Desacely diffusizem is also present in the plasma at levels of 10% to 20% of the parent drug and is 25% to 50% as potent a coronary vasodilator as diffusizem. Therapeutic blood levels of CARDIZEM appear to be in the range of 50 to 200 ng/ml. There is a departure from dose linearity when single doses above 60 mg are given, a 120 mg dose gave blood levels three times that of the 60 mg dose. There is no information about the effect of renal or hepatic impairment on excretion or metabolisms of diffusizem. impairment on excretion or metabolism of diltiazem

INDICATIONS AND USAGE

Angina PectorIs Due to Coronary Artery Spasm. CARDIZEM

is indicated in the treatment of angina pectoris due to coronary artery spasm. CARDIZEM has been shown effective in the treatment of spontaneous coronary artery spasm presenting as Prinzmetal's variant angina (resting angina with ST-segment

elevation occurring during attacks)

2 Chronic Stable Angina (Classic Effort-Associated Angina) CARDIZEM is indicated in the management of chronic stable angina. CARDIZEM has been effective in controlled trials in reducing angina frequency and increasing exercise tolerance. There are no controlled studies of the effectiveness of the concomi

tant use of diltrazem and beta-blockers or of the safety of this combination in patients with impaired ventricular function or conduction abnormalities

CONTRAINDICATIONS

CARDIZEM is contraindicated in (1) patients with sick sinus syndrome except in the presence of a functioning ventricular pacemaker, (2) patients with second- or third degree AV block except in the presence of a functioning ventricular pacemaker, and (3) patients with hypotension (less than 90 mm Hg systolic)

WARNINGS

1 Cardiac Conduction. CARDIZEM prolongs AV node refractory periods without significantly prolonging sinus node recovery time, except in patients with sick sinus syndrome. This effect may rarely result in abnormally slow heart rates (particularly in patients with sick sinus syndrome) or second- or third-degree AV block (six of 1243 patients for D 48%). Concomitant use of dittazem with beta-blockers or digitalis may result in additive effects on cardiac conduction A patient with Prinzmetal's angina developed periods of asystole (2 to 5 seconds) after a single dose of 60 mg of ollitrazem.

2 Congestive Heart Fallure. Although dilitazem has a negative inotropic effect in isolated animal tissue preparations, hemodynamic studies in humans with normal ventricular function have not shown a reduction in cardiac index nor consistent negative effects on contractifity (dp/dt). Experience with the use of CARDIZEM alone or in combination with beta-blockers in patients with impaired ventricular function is very limited. Caution should Cardiac Conduction. CARDIZEM prolongs AV node refrac-

with impaired ventricular function is very limited. Caution should be exercised when using the drug in such patients.

3 Hypotension. Decreases in blood pressure associated with CARDIZEM therapy may occasionally result in symptomatic

A Acute Hepatic Injury. In rare instances, patients receiving CARDIZEM have exhibited reversible acute hepatic injury as evidenced by moderate to extreme elevations of liver enzymes. See PRECAUTIONS and ADVERSE REACTIONS)

PRECAUTIONS

General, CARDIZEM (diltrazem hydrochloride) is extensively metabolized by the liver and excreted by the kidneys and in bile. As with any new drug given over prolonged periods, laboratory parameters should be monitored at regular intervals. The drug should be used with caution in patients with impaired renal or hepatic function. In subacute and chronic dog and rat studies designed to produce toxicity, high doses of diltiazem were associated with hepatic damage. In special subacute hepatic studies, oral doses of 125 mg/kg and higher in rats were associated with histological changes in the liver which were reversible when the drug was discontinued. In dogs doses of 20 mg/kg were also associated with hepatic changes,

however, these changes were reversible with continued dosing

Drug Interaction. Pharmacologic studies indicate that there
may be additive effects in prolonging AV conduction when using
beta-blockers or digitalis concomitantly with CARDIZEM (See

Controlled and uncontrolled domestic studies suggest that concomitant use of CARDIZEM and beta-blockers or digitalis is usually well tolerated. Available data are not sufficient, however, to predict went oberacted wandere data are not sufficient, however, to preduce the effects of concomitant treatment, particularly in patients with left ventricular dyslunction or cardiac conduction abnormalities. In healthy volunteers, dilitazem has been shown to increase serum digoxin levels up to 20%

Carcinogenesis, Mutagenesis, Impairment of Fertility. A 24-month study in rats and a 21-month study in mice showed no evidence of carcinogenicity. There was also no mutagenic response in in vitro bacterial tests. No intrinsic effect on fertility was observed.

Pregnancy. Category C Reproduction studies have been conregnancy. Category C meproduction studies have been conducted in mice, rats, and rabbits. Administration of doses ranging from live to ten times greater (on a mg/kg basis) than the daily recommended therapeutic dose has resulted in embryo and fetal lethality. These doses, in some studies, have been reported to cause skeletal abnormalities. In the perinatal/postnatal studies, there was some reduction in early individual pup weights and survival rates. There was an increased incidence of stillbirths at doses of 2D times the human dose or greater

There are no well-controlled studies in pregnant women, therefore, use CARDIZEM in pregnant women only if the potential benefit justifies the potential risk to the fetus

Nursing Mothers. It is not known whether this drug is excreted.

in human milk. Because many drugs are excreted in human milk, exercise caution when CARDIZEM is administered to a nursing woman if the drug's benefits are thought to outweigh its potential risks in this situation

Pediatric Use. Safety and effectiveness in children have not been established

ADVERSE REACTIONS

Serious adverse reactions have been rare in studies carried out to date, but it should be recognized that patients with impaired ventricular function and cardiac conduction abnormalities have usually been

In domestic placebo-controlled trials, the incidence of adverse reactions reported during CARDIZEM therapy was not greater than that reported during placebo therapy

The following represent occurrences observed in clinical studies which can be at least reasonably associated with the pharmacology of calcium influx inhibition. In many cases, the relationship to CARIDIZEM has not been established. The most common occurrences, as well as their frequency of presentation, are edema (2.4%),

headache (21%), nausea (19%), dizziness (15%), rash (1.3 asthenia (12%), AV block (11%). In addition, the following ever reported infrequently (less than 1%) with the order of preser tion corresponding to the relative frequency of occurrence

Cardiovascular

Nervous System

Gastrointestinal

Flushing, arrhythmia, hypotension, brady dia, palpitations, congestive heart fail

syncope

syncope
Paresthesta, nervousness, somnolen
tremor, insomnia, hallucinations, and amne
Constitution, dyspepsia, diarrhea, vomiti
mild elevations of alkaline phosphatase, SG
SGPT, and LDH

Pruntus, petechiae, urticaria, photosensitii Polyuria, nocturia Dermatologic

The following additional experiences have been noted

A patient with Prinzmetal's angina experiencing episodes vasospastic angina developed periods of transient asymptom. asystole approximately five hours after receiving a single 60-dose of CARDIZEM

The following postmarketing events have been reported in quently in patients receiving CARDIZEM erythema multiforme, I kopenia, and extreme elevations of alkaline phosphatase, SG SGPT, LDH, and CPK. However, a definitive cause and effect betwi these events and CARDIZEM therapy is yet to be established.

OVERDOSAGE OR EXAGGERATED RESPONSE

Dverdosage experience with oral ditrazem has been limit Single oral doses of 300 mg of CARDIZEM have been well tolera by healthy volunteers. In the event of overdosage or exaggera response, appropriate supportive measures should be employed addition to gastric lavage. The following measures may be consider

High-Degree AV

Bradycardia

Cardiac Failure

Hypotension

Rinck

Administer atropine (D.60 to 1.D mg). If the is no response to vagal blockade, administsoproterenol cautiously. Treat as for bradycardia above. Fixed his degree AV block should be treated with a drap pacing. Administer inotropic agents (isoproterer dopamine, or dobutamine) and diuretics.

Vasopressors (eg. dopamine or levartere bitartrate).

Actual treatment and dosage should depend on the severity of clinical situation and the judgment and experience of the treat physician

physicial The oral/LD_{so}'s in mice and rats range from 415 to 74D mg and from 560 to 810 mg/kg, respectively The intravenous LD_{so}'s these species were 60 and 38 mg/kg, respectively The oral LD_{so} dogs is considered to be in excess of 50 mg/kg, while lethality were in monkeys at 36D mg/kg. The toxic dose in man is not kno but blood levels in excess of 80D ng/ml have not been associal with providers.

DOSAGE AND ADMINISTRATION

DOSAGE AND ADMINISTRATION
Exertional Angina Pectoris Due to Atherosclerotic Conary Artery Disease or Angina Pectoris at Rest Due to Conary Artery Spasm. Dosage must be adjusted to each patiel needs. Starting with 3D mg four times daily, before meals and bedtime, dosage should be increased gradually (given in dividual oses three or four times daily) at one- to two-day intervals in optimum response is obtained Although individual patients in respond to any dosage level, the average optimum dosage rai appears to be 180 to 240 mg/day There are no available data consumed of the drug must be used in such patients, titration should carried out with particular caution.

function If the drug must be used in such patients, titration should carried out with particular caution.

Concomitant Use With Other Antlanginal Agents:

1 Sublingual NTG may be taken as required to abort act anginal attacks during CARDIZEM therapy

2 Prophylactic Nitrate Therapy — CARDIZEM may be sall coadministered with short- and long-acting nitrates, but the have been no controlled studies to evaluate the antiangle affectiveness of this combination.

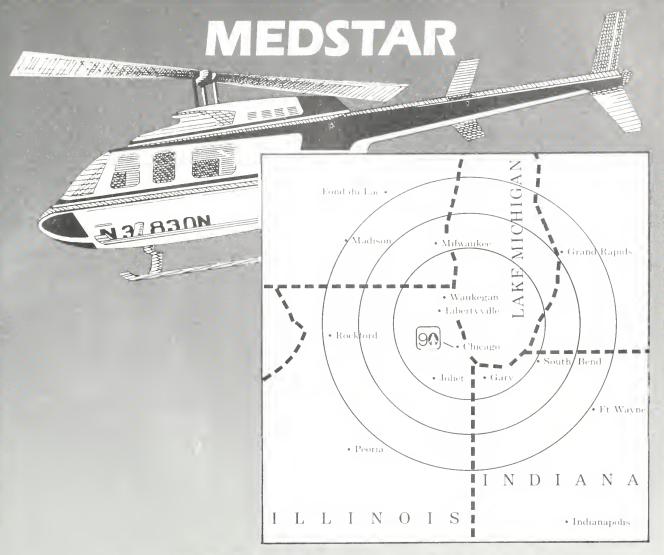
effectiveness of this combination. 3 Beta-blockers. (See WARNINGS and PRECAUTIONS.)

HOW SUPPLIED

Cardizem 3D-mg tablets are supplied in bottles of 10D (N DD88-1771-47) and in Unit Dose Identification Paks of 1DD (N DD88-1771-49). Each green tablet is engraved with MARIDN on side and 1771 engraved on the other CARDIZEM 6D-mg soot tablets are supplied in bottles of 100 (NDC 0D88-1772-47) and in Dose Identification Paks of 100 (NDC 0D88-1772-49). Each yell tablet is engraved with MARION on one side and 1772 on the off

Another patient benefit product from





WHEN LIVES DEPEND ON MINUTES, YOU CAN DEPEND ON MEDSTAR.

MedStar is Saint Mary Of Nazareth Hospital Center's emergency helicopter transport system. It can cut travel time as much as three fold, and offers advanced life support systems, specially trained crews, and immediate accessibility to and from facilities within 125 miles of Chicago.

But that's only the beginning of what MedStar means to every medical facility within our service area.

It's also your patients' lifeline to a unique partnership between physicians and health care providers — a partnership that taps the entire spectrum of tertiary care services available within our radius. MedStar is first and foremost dedicated to continuing the care you've initiated, and returning the patient to your care as soon as possible. It's the kind of service you'd expect from Saint Mary's. Our 490-bed facility is one of Chicago's major training centers for critical care specialists. Our own staff of specialists render hyperacute patient care services ranging from limb reattachment and microsurgery to open heart and emergency neurosurgery.

So when you depend on MedStar, you can depend on Saint Mary's. That's what partners are for. To help.

For More Information, Call Our Program Director at (312) 770-3273.



Saint Mary of Nazareth Hospital Center

2233 W. Division Street · Chicago, IL 60622

Intraoperative Radiotherapy in Advanced, Recurrent or Metastatic Malignancy

ALISON R. CALKINS, M.D.¹ STEVEN G. LESTER, M.D.² FREDERICK B. STEHMAN, M.D.³ RICHARD McCAMMON, M.D.⁴ NED B. HORNBACK, M.D.⁵

r rom Indian. Indiensity Pospitals Indianapolis

Canneal Fellow, Radiation Oncology.
Chief Resident Radiation Oncology
Director, Gynecology, Oncology, Dept. of
Obstetries and Gynecology.

Associate Professor, Dept. of Anesthesia Thurman, Dept. of Radiation Oncology.

Force spondence, Asson Call ins. M.P., Dept. Madia ion One dogy. Radia ion Therapy. 07—1100 W. Michigan St., Indianapolis, Ind. 46223

Acknowledgments: The authors wish to hank the following people for their support and cooperation with this project: Dr. Norman Pstes and Dr. Thomas Broadie, Dept of Ceneral Surgery, Dr. Charence Ehrhah and Dr. Gregory Suiton, Dept of Obstetrics and Gracecology, Dr. Frank Peyton Kadra (no. Cincology, Kokomo, Ind.; Dr. Rebert (100) Cincology, Kokomo, Ind.; Dr. Rebert (100) Cincology, Wedical Physicist: Sonna Goodin, R.N. (in the Dept., of O.R. Nursing Lester Weisel, Pat Barlow, R.N. (Judy Schneider, It T.) and the Dept. of Radiation Oncology, and the Industral Iniversity Police Depart (10) in

N NOV. 30, 1895, Wilhelm Conrad Roentgen announced the discovery of x-rays. The medical implications of this new technique were immediately recognized. Over the next six years many publications characterized the properties of the new rays. Realizing that the rays had biologic effects as well as photographic potential, Grubbe treated a patient who had lupus vulgaris just 60 days after Roentgen's discovery was announced.

Between 1895 and 1901 radiation was widely studied. In March 1897, an announcement in the *Archives of Skiagraphy* announced the formation of a Skiagraphic Society, later changed to the Roentgen Society? Initially, radiation was widely used to treat a variety of neoplastic and non-neoplastic conditions such as tuberculosis and pyogenic infections.

During the first 40 years of radiation therapy, equipment operated in the 250 400 kilovolt energy range. White this energy level was effective in treating superficially located tumors, the poor penetration of the beam required high doses of radiation to be delivered to the skin in order to achieve therapeutic dose levels deep within the body. Thus, radiation side effects on the skin were universal and dose limiting.

Since the 1950s, megavottage equipment with more penetrating beams and better skin sparing properties has enabled the treatment of patients with tumors situated deep in the pelvis, retroperitoneum, and mediastinum. Other improvements such as computerized treatment planning, specialized shielding techniques, development of simulators, and the

creation of specific training programs in radiation oncology have led to improved survival rates with significantly decreased acute and chronic side effects.

With few exceptions, doses of 4500 5000 rad are necessary to obtain high probabilities of control when treating microscopic quantities of tumor; and doses in excess of 7000 rad are required to permanently control macroscopic disease. Doses of this magnitude cannot be delivered safely to tumors situated near critical organs such as small bowel, spinal cord or kidney without causing significant damage to these organs.

If these organs could be protected or removed from the radiation beam, they would not be subjected to radiation damage. Higher doses of radiation could then be delivered to the tumor; and, theoretically, an improvement in local tumor control should occur.

Although the idea of delivering radiation directly to the tumor during an operation was conceived in the 1930s, it was impractical with existing technology. The recent development of the therapeutic electron beam has brought about a resurgence in the popularity of intraoperative radiotherapy. Unlike x-rays, electrons are subatomic particles. That is, they have mass. They do not exit the patient. Rather, they are absorbed within the tissue being treated. The depth to which the beam penetrates can be finely controlled by adjusting the amount of energy imparted to the electrons. For example, it is possible to treat tumors of the pancreas situated on top of the spinal cord without delivering any appreciable dose to the cord itself.

Dr. Mitsuyuki Abe, director of radio-

therapy at the University of Kyoto, has pioneered the technique of intraoperative radiotherapy and has now published his experience with over 700 patients.4 In the United States, large, formal studies are ongoing at Massachusetts General Hospital, the Mayo Clinic, the National Cancer Institute. and Howard University. The Radiation Therapy Oncology Group, a national cooperative study group, is also in the process of activating several nationwide studies. Indiana University Hospital has undertaken a prospective clinical trial of inoperative radiotherapy in patients with large, deep seated, or recurrent tumors.

Patients were chosen who had no reasonable expectations for cure or meaningful palliation by other standard treatment methods. All patients were informed of the investigational nature of the treatment and signed an informed consent.

As in most facilities, since a radiation treatment machine is not present in the operating room it is necessary for us to transport patients during their surgery. Although cumbersome, they have not experienced any prob lems. Patients are taken to the operating room for exploration. The extent of the tumor is identified and as much as possible is removed. Generally, microscopic tumor residual is left behind which cannot be removed because the tumor is usually attached to important structures such as bones, nerves, and blood vessets. The radia tion oncologist measures the tumor to select an appropriate size of treatment cone and electron beam energy. Then, the surgeon temporarily closes the wound with several large sutures, and the patient is sterilely draped for transportation.

The patient is transported under anesthesia from the operating room to the Department of Radiation Oncology. There, the wound is reopened, the tumor exposed, and the radiation treatment given with a Seanditronix Medical Microtron (see Figure). During the treatment, all personnel are re-



CONES ARE PLACED in preparation of delivering intraoperative radiation to a pelvic tumor using the Scanditronix Medical Microtron, a radiation treatment machine presented as a gift to the Indiana University Medical Center by the Indiana Lions Club.

quired to leave the room; the patient is monitored by several television cameras. Ventilation is maintained mechanically. Treatments generally take about 10 minutes, after which the wound is temporarily closed. The patient is then transported back to the operating room where the surgical procedure is completed.

Results

The following is a summary of experiences with the first patients treated with this technique.

• A 35 year-old white woman, who was diagnosed in June 1979 as having stage 1B carcinoma of the cervix, was treated with radical hysterectomy. She did well until February 1984 when she presented with an enormous pelvic recurrence, weight loss, and sciatic nerve pain requiring Methadone analgesia. She was started on external radiotherapy and received 4500 rad to her pelvis. On March 27, 1984 the residual tumor mass was debulked using the Cavitron Ultrasonic Surgical Aspirator (CUSA). Gross

residual tumor left in the base of the bladder and on the left pelvic sidewall was treated with 2000 rad intraoperatively. Postoperatively, she did well and was discharged from the hospital on the eighth postoperative day. On May 7, 1984 she was seen in the Department of Obstetrics and Gynecology; she reported that she was off all her pain medication. A postoperative CT scan showed only some mild thickening in the ischiorectal fossa.

• A 32-year-old white woman with stage IB carcinoma of the cervix was treated in July 1980 by radical hysterectomy and lymphadenectomy. She did well until December 1983 when she presented with symptoms of left sciatic nerve irritation due to an unresectable recurrent tumor in the left pelvis. She was referred to the Department of Radiation Therapy where she received 5000 rad of pelvic radiation. At laparotomy on March 19, 1984 the remaining mass appeared to be only a flat plaque. As much tumor bulk as possible was removed with the CUSA device. She was then transferred to the Department of Radiation Therapy where 1500 rad was delivered intraoperatively. Postoperatively, she did well and was discharged from the hospital on the seventh postoperative day. A CT scan in May revealed only a pelvic lymphocele.

 A 25-year-old white woman was diagnosed in April 1982 as having stage fffB carcinoma of the cervix. She received radiation therapy with an initial good response. Recurrent cancer was diagnosed in May, and pelvic exenteration was attempted. A 2 cm node was found atthis isolated node was debulked and the area treated with intraoperative radiation. Her surgeons were then able to complete this potentially curative surgery. Two weeks postoperatively, she developed a pelvic abscess. However, this is a comof her intraoperative radiation. She is currently undergoing further external radiotherapy and doing well.

Discussion

Radiation delivered intraoperative-

ly has a number of attractive advantages:

- 1) The volume of tumor can frequently be reduced by "debulking" surgery to microscopic or minimal levels;
- 2) All or part of dose-limiting vital structures can be moved out of the radiation beam:
- 3) The tumor can be directly visualized and is less likely to be missed by the radiation beam; and
- 4) Large single doses of radiation are biologically more damaging to cancer than equivalent doses of radiation delivered over many days in smaller doses.

Because of these advantages, there should be a marked increase in the therapeutic ratio and tumor control rates should escalate without adding to the radiation complication rate.

In this ongoing study, it is felt that the most judicious use of intraoperative radiotherapy is after a full course of external beam radiation has been us ed to shrink the tumor and allow surgeons to remove as much tumor as possible. However, this protocol is also open to patients who have had previous radiation and are not able to be treated by additional external radiation.

Summary

Intraoperative therapy is a promising modality with great potential benefit to selected patients. The procedure demands close cooperation between the departments of Surgery, Anesthesiology, Nursing Services, and Radiation Oncology. Thus far, we have seen no serious or life-threatening complications related to the intraoperative radiotherapy treatment. Although intraoperative radiation is technically a safe procedure, randomized controlled studies will be required to evaluate its effectiveness in improving survival rates and to determine optimal

tumoricidal doses and normal tissue tolerances.

REFERENCES

- Lederman M: The early history of radiotherapy: 1895-1939. Int J. Radiat Oncol Biol Phys., 7:639-648, 1981.
- Landes R, Hall S: A letter from Joseph Lister to Dr. David Walsh. JAMA, 251:3101-3103, 1984.
- 3. Fletcher G: Textbook of Radiotherapy, 3rd ed., Lea and Febiger, 105-175, 1980.
- Abe M, Takahashi M: Intraoperative radiotherapy: The Japanese ex perience. Int J. Radiat Oncol Biol Phys., 7:863, 1981.
- Tepper J: Intraoperative radiation therapy. Radiat Oncol Ann. 247-265, 1983
- Martin J: Intraoperative radiation of pancreatic and colonic cancer. Probl Gen Surg, 1:67-74, 1984.
- Sindelar W, et al: Experimental and clinical studies with intraoperative radiotherapy. Surg Gynecol Obstet, 157:205-215, 1983.
- Goldson A: Past, present, and prospects of intraoperative radiotherapy (IOR). Semin Oncol, 8:59-64, 1981.

Look-Alike and Sound-Alike Drug Names

BENJAMIN TEPLITSKY, R. PH. Brooklyn, N.Y.

Look-alike and sound-alike drug names can be misinterpreted by a nurse reading doctors' orders or by a pharmacist compounding physi cians' prescriptions. Such misunderstandings can result in the administration of a drug not intended by the prescriber. Awareness of such look alike and sound-alike drug names can reduce potential errors. Category: Brand Name

Generic Name. Dosage Forms:

Category; Brand Name; Generic Name; DosageForms; KEFLIN

Antibiotic Keflin, Neutral, Lilly

Cephalothin sodium Powder for injection

MILONTIN Anticonvulsant Milontin, Parke Davis Phensuximide

Phensuxii Capsules KEFLEX

Antibiotic Keflex, Dista

Cephalexin

Capsules, Tablets, Oral Susp., Pediatric oral susp.

MILTOWN

Tranquilizer Miltown, Wallace Meprobamate Tablets



If you recognize Tad's father, you'll recognize the name of one of the largest life insurance companies in America.

Lincoln. It's a name you'll remember.

Benefits available to members of the Indiana State Medical Association and their employees through expanded ISMA group sponsored Lincoln National Life health insurance coverage:

MEDICAL PLAN 1

• 365 Days of Inpatient Hospital Care

100% payment semi-private or hospital ward room including the cost of blood

365 Days In-Hospital Medical Care

Reasonable and Customary allowances for surgery, maternity, general anesthesia, medical visits, and radiation therapy

\$500 Supplemental AccidentUnlimited Major Medical Benefits

MEDICAL PLAN 2

- Comprehensive Major Medical expense protection—\$500 Calendar Year Deductible
- Unlimited Maximum Benefits

MEDICAL PLAN 3

- Comprehensive Major Medical expense protection—\$250 Calendar Year Deductible
- Unlimited Maximum Benefits

MEDICAL PLAN 4

- Low cost comprehensive Major Medical expense protection—\$2,000 Calendar Year Deductible
 Unlimited Maximum Benefits

NEW DENTAL PLAN

- · Reasonable and Customary allowances for necessary care and treatment for dental health
- \$1,500 Maximum Dental Benefit per person in a Calendar Year

The Lincoln National Life Insurance Company is most pleased to be underwriting the Group Medical and Dental Programs for the Indiana State Medical Association. Your benefit programs have been designed to provide the highest quality coverage and service at the lowest possible cost. A special claim paying unit has been established in our Indianapolis Group Benefits and Service Office to handle only the ISMA program. Should you have questions or problems, you may speak directly to your claim processor at 317-846-6211/800-692-6014. We look forward to serving your association and encourage your review of the programs and services being provided.

or more information call or write:

James D. Townsend or Earl W. Williams Professional Account Representatives 8900 Keystone Crossing, Suite 500 Indianapolis, Indiana 46240 (317) 846-7502 or (317) 844-3119 1-800-428-7105 Toll Free Outside Indiana

Tom Martens Director, Health Insurance Administration Indiana State Medical Association 3935 North Meridian Street Indianapolis, Indiana 46208 (317) 926-4424 1-800-382-1721



The Lincoln National Life Institute Company Fort Wayne, Indiana

A member of Lincoln National Corporation

Toxocara canis in Humans

JAMES R. DAGGY, M.D. Richmond

UMAN INFESTATIONS with toxocara canis may be asymptomatic, severe, irreversible, or even fatal. Toxocara is a parasitic helminth. T. canis is the common round worm of dogs. It was not until 1952 that Beaver identified the larvae of T. canis in tissues of several children.

About 40% of U.S. households have dogs, and there are over 30 million dogs in the United States. Although there may be some risk in having a dog that might carry this threatening vector, the current infrequency of symptoms combined with the strong emotional human-animal bond makes any significant change unlikely.

Ninety-eight per cent of puppies and 20% of adult dogs are infected with T. canis. Ehrenford in 1957 demonstrated that 21% of 1,465 dogs studied in Indiana were infected. The high percentage in puppies occurs because of transplacental migration. The pregnant dog has a marked mobilization of the usually quiescent larvae, probably on a hormone basis. Puppies and lactating females shed large numbers of eggs by the fourth week postpartum. These eggs become infective in two or three weeks. The eggs may survive for months in humid soil. In dogs, the larvae become encysted and rarely complete their life cycle except as noted above. Toxocara cati occurs in 10% to 70% of cats, but prenatal infection of cats does not occur. Probably the nonspecific nature of the clinical signs and symptoms leads to significant underdiagnosis.

Transmission to humans may occur by ingestation of eggs in the soil, contaminated hands, other fomites carrying eggs, and direct contact with infected bitches or puppies three weeks to six months of age. Eggs of *Ascaris lumbricoides*, the common round worm of man, are frequently found in the same soil sample. It is estimated that 10% to 30% of children between the

An Indiana Case Report
Is Presented, Together
With a Discussion
of This Sometimes
Puzzling Disease . . .

ages of one and six years have pica, which has been elearly shown to increase the probability of acquiring *Toxocara*. Pica, the Latin word for magpie, is an abnormal craving to eat substances not fit for food, such as clay, paint and dirt. From 10% to 30% of soil samples in public playgrounds and parks have been found to be contaminated with *Toxocara* eggs. Warm climate and clay soil permit longer survival of the eggs, which accounts for an increased incidence of infestation in the South.

Case Report

Following is a case report of a pa-

tient believed to have a symptomatic infestation with *Toxocara canis*:

A 7-year-old boy was admitted to Reid Memorial Hospital in Richmond, Ind., Dec. 13, 1983 because of a seizure he had that morning. Subsequently, he confided that he had had a similar seizure the day before but had not men tioned it to anyone. After hospitalization, he had seven more similar seizures manifested by jerking of the left arm and hand, turning and leaning the head to the right, but no loss of consciousness, followed by weakness in the left upper extremity for about one hour. However, he did not lose the ability to speak during these episodes. Preceding events thought possibly to be significant included: an automobile accident one month earlier, causing what seemed to be a minor head injury; a gym class injury two days before involving a head-on collision leading to a little redness about the right eye and in the right selera; and a fever of 102 F, the day prior to admission.

Skull films and CT scan of the head were normal. An EEG revealed a right parietal focus of seizure activity. Spinal fluid showed 173 cells with 85 segmented cells and 15 monocytes; a subsequent spinal fluid examination revealed only eight cells. Spinal fluid glucose was 49 mg/dl, protein 22 mg/dl, and chloride was 121 mg/dl. Spinal fluid and blood cultures showed no growth. CIE for H-flu, meningitides, and Beta strep A and B were normal. Sedimentation rate was four mm/hr. An SMA-12, gases, and blood electrolytes were normal. An initial blood count revealed a white blood cell level of 6500 with 30 eosinophiles, one stab, 34 lymphs, four monocytes, and one basophile. The 30% eosinophilia was confirmed on a subsequent count. Just prior to his discharge on December 16,

Correspondence: 1020 North J St., Rich mond, Ind. 47374.

1983, eosinophilia had dropped down to 12%.

Virus studies for poliomyelitis 1, 2, and 3, herpes simplex, measles, mumps, and Coxsackie B 1 through 6 were all negative. Acute and convalescent enzyme linked immunoabsorbent assays (ELISA) for *Toxocara canis* were positive 1:64. Acid fast and yeast studies of the CNS were negative.

Treatment

After the initial spinal fluid tap, the boy was empirically started on Chloramphenocol and Ampicilin and Dilantin. Dilantin level reached 25 ug/dl associated with vomiting. Lowering the Dilantin level failed to relieve the vomiting, but discontinuation of antibiotic with demonstrated negative bacteria studies did relieve all vomiting.

The boy has been continued on Dilantin and has had no additional seizures. His eosinophilia has continued to drop. Ophthalmoscopic examinations have remained normal.

Discussion

Ingested eggs of *T. canis* containing second stage larvae hatch in the small intestine. Larvae penetrate the mucosa, go via the portal vein to the liver, follow vascular channels to the lung, and then enter the systemic circulation. If the larvae are impeded by the size of the blood vessel, they bore through the vessel wall and wander aimlessly in the surrounding tissue.⁵ Disease produced by the wandering larvae has been named *Visceral Larvae Migrans* (VLM), a diease in man caused by the infective stage of nematode parasites of other animals.

Man being an abnormal host either has unfavorable tissue reaction or otherwise fails to provide stimulus for usual tissue migration and development of the parasite. As a result, larvae only 0.3 mm in length remain active for variable time in various tissues. Most of the larvae become dormant but may remain alive for up to 10 years. Later they may become active and continue their migration.

Larvae encapsulated by eosinophiles are thus protected or destroyed. The clinical and pathological manifestation in VLM results from the mechanical damage and the severe inflammatory response. In man, larvae are found most often in the liver, but any tissue can be invaded. The first invasion is more likely than subsequent invasions to involve the eye and brain. It appears that dead or dying larvae cause a greater inflammatory response than do the living.

Manifestations

Signs and symptoms include fever, leukocytosis, persistent eosinophilia, hypergammaglobulinemia, hepatomegaly, cough, wheeze, pallor, malaise, irritability and weight loss. An itching rash may occur on the trunk and lower extremities. Also, the patient may have tender nodules in palms and soles, erythema nodosum, purpura, fine papular rash, urticaria, and recurrent circular painless subcutaneous lesions in the loin and extremities.4 Granulomata and larvae have been demonstrated in brain tissue in man. In one study, 14% of patients with VLM had a history of convulsions. There have been eight case reports of humans with acute neurological symptoms who at autopsy were found to have Toxocura canis larvae in the brain.

Counts may go up to 100,000 with up to 90% eosinophilia. IgM and IgE are elevated and Anti A and Anti B titers are usually elevated because Toxocara larvae contain surface antigens that stimulate isohemaglutinins. Not all patients with VLM have extreme eosinophilia, especially children with ocular involvement.7 Pulmonary involvement is common but rarely severe with bronchiolitis, asthma, or transient pneumonitis. The few fatalities reported were caused by extensive involvement of the myocardium or the central nervous system, or an exaggerated immune response.

Neurological manifestations include focal or generalized seizures and behavior disorders. Cerebral spinal fluid may show increase in eosinophiles. Ocular involvement is typically unilateral. Symptoms include visual loss, strabismus, and eye pain. Fundoscopic examination may show peripheral granuloma or inflammatory response with retinal detachment. The differentiation between retinoblastoma and Toxocara infestation can be clinically difficult, and the serum antibody titer should not be relied upon solely. Tomography and vitreous eosinophilia and vitreous antibody to Toxocara can be helpful. To maximize sensitivity (to rule in patients with the disease) and specificity (to rule out patients free of the disease), a cut off titer of greater than 1:8 for ocular disease and greater than 1:32 for VLM has been recommended.

Prevention

Treatment is one primarily of prevention to include elimination of infection in dogs. Appropriate antihelminthies should be given puppies and nursing females 21 days postpartum and at weekly intervals for three weeks. Stool studies of dogs should then be done twice yearly and retreatment instituted when indicated. Steroids may be helpful in pulmonary disease. Parasitacidal compounds are at best equivocal.

REFERENCES

- Beaver PC, ct al: Chronic eosinophilia due to visceral larrae migrans: Report of three cases. Pediatrus, 9:7-19, 1952.
- Brain, Lord, Allan: Encephalitis due to infection with *Tococara cams. Lancel*, 1:1355, 1964.
- Sprent JFA: Observations on the development of Toxocara canis in dogs. Parasitology, 48:184, 1958.
- Visceral larrae migrans; A discussion based on review of the literature, Clin Pediatr, 1968.
- Schantz PM, Glickman LT: Toxocaral visceral larvae migraus, N Engl J Med, Feb. 23, 1975.
- Beaver PC: The nature of viscoral larvae migrans, J Parasitol, 55:3-12, 1969.
- 7. Zinkham WH: Visceral larrae migrans. Am J Dis Child, 132: June 1978.
- 8. Shields, ct al: ELISA for diagnosis of ocular toxocariasis. Ophthalmology, 36:743-749, 1979.

Babesia microti in an Indiana Woman

DARRYL R. SMITH, M.D. ROBERT R. CLEVENGER, BS MT (ASCP) Fort Wayne

Abstract

Babesia microti is an intracrythrocytic protozoan parasite that rarely has been diagnosed in human in fections outside the coastal areas of New England. A 56-year-old woman was admitted to an Indiana hospital with thrombocytopenia, jaundice, and flu-like symptoms. She was diagnosed as having Babesia microti. The diagnosis was based upon finding numerous vacuolated ameboid organisms on a peripheral blood smear, hamster inoculation, and high titers in an indirect immunofluorescent antibody test.

From the Dept. of Pathology, Parkview Memorial Hospital, Fort Wayne, Ind.

Correspondence: Darryl R. Smith, M.D., Dept. of Clinical Chemistry, Parkview Memorial Hospital, 2200 Randallia Drive, Fort Wayne, Ind. 46805. ABESIA MICROTI is a well known cause of disease called piroplasmosis. It occurs in many species of domestic and wild animals. Almost all of the human infections in the United States have been reported from the Northeast coast. We report details of a case that was diagnosed in an Indiana hospital from a woman who had recently vacationed on Long Island, N.Y.

Report of a Case

A 56-year-old woman from a small semi-rural town in northeastern Indiana was admitted with fever, chills, diaphoresis, nausea and vomiting. The symptoms had persisted for 10 days before coming to the hospital despite treatment with antibiotics and salicylates.

Past history was non-contributory. Review of systems was positive for generalized weakness and myalgias. Although initially denying any travel, specific questioning revealed that the patient had recently visited her son in New York and had pienicked on Long Island.

Physical examination revealed an acutely ill appearing middle aged woman. Vitial signs were blood pressure 120/64, pulse 96, respiration 20, and temperature 99.8F°. A palpable spleen tip on deep inspiration and petechia of the lower extremities were the foremost physical findings.

Initial laboratory tests showed a total white count of 7,000 per emm, hemoglobin 11.5 gm/dl, hematocrit 33.7%, platelets 70,000 cmm, total bilirubin 1.4 gm/dl., alkaline phosphates 234 U/1 (reference range 30-115 U/1), lactate dehydrogenase 2920 U/1 (reference range 100-225 U/1), and aspartate aminotransferase 770 U/1 (reference range 7-40 U/1).

The evening laboratory technologist reviewed the peripheral blood smear

and noted malarial-like inclusions within the red cells. The slide was reexamined the following morning and found to be diagnostic of babesiosis.

Samples for confirmatory testing were sent to the Center for Disease Control, Atlanta, Ga. There the peripheral smears were also read as Babesia species. Immunofluorescent titers were strongly positive for Babesia microti at 1:4096. Hamster inoculation furthermore grew Babesia microti

Over the next 17 days the patient's liver functions and platelet count returned to normal, her hemoglobin and hematocrit stabilized and her red cells became free of intracellular parasites. As of nine months later, the woman is free of symptoms and in generally good health.

Discussion

Babesiosis is eaused by a red cell parasite closely related to the malarial organisms. The parasite was first discovered by V. Babes, who described the organism in an outbreak of the disease in Romanian cattle in 1888. There are 71 species of the genus Babesia,2 The species commonly cited in human infections are B. divergens, B. bovis, B. equi and B. microti, B. microti is by far the most common cause of babesiosis in the United States. These cases have clustered around the mouth of Long Island Sound, including Nantucket Island, Shelter Island, Martha's Vineyard and Eastern Long Island. The insect veetor of B. microti is the hard tick, Lvodes dammini. The animal reservoirs are field mice, deer mice and domestic animals.

The course of the infection, as in this patient, tends to be a self-limiting febrile illness. The exceptions to this pattern are in asplenic patients who

FIGURE 1: Ameboid, vacuolated trophozoite of *B. microti* Giemsa stain (1000x).

FIGURE 2: Trophozoites of *B. microti* demonstrating double chromatin dots often mistaken for *Plasmodium fulciparum* rings. Giemsa stain (1000x).

FIGURE 3: RBC containing two mature, vacuolated trophozoites of *B. microti*, Giemsa stain (1000x).

FIGURE 4: Four erythrocytes infected with trophozoites of *B. microti* at various stages of maturity. At top right are four merozoites in the plasma, Giemsa stain (1000x).

commonly incur fatal infections. Common symptoms include fever, shaking chills, headaches and dark urine. The only prominent clinical finding may be mild splenomegaly. Hemolytic anemia is the rule with a decreased hemoglobin and hematocrit. A hematocrit of about 30% is commonly noted. In concert with hemolytic anemia, decreased haptoglobin and increased reticulocyte counts are seen. The leukocyte count is often normal and thrombocytopenia may occur. Low platelets may result in purpuric lesions. Liver function tests are usually mildly elevated.

The diagnosis of babesiosis is based primarily on characteristic cell inclusions on a peripheral blood smear, indirect fluorescent antibody titers, and rodent inoculation.

The peripheral blood smears stained with either Wright's or Giemsa's stain demonstrate intracrythrocytic organisms which may be pear-shaped, round, ameboid or ring-shaped. Commonly, the organisms occur in pairs or tetrads, sometimes referred to as "maltese-cross" forms. The parasites are 1.0-5.0 um. in diameter and are frequently mistaken for the ring form of

the malarial parasite, *Plasmodium falciparum*. The infected erythrocytes do not contain Schuffner's dots or Maurer's granules, nor are they enlarged or pale. *Bahesia* spp. differs from *Plasmodia* spp. in that they do not produce hemozoin pigment in the erythrocyte and do not develop into schizonts or gametocytes.

Serodiagnosis by the indirect fluorescent antibody test is sensitive and reliable in malaria-free areas. Serology is of limited value in areas endemic for malaria because many *Babesia* spp. antigens cross-react with

those of *Plasmodia* spp. Thick blood l'ilms from the patient or animals inoculated with patient's blood are used as the antigen source. Fluorescent antihuman immunoglobin antibody for the test is commonly of rabbit origin. Individuals with babesiosis develop high titers which drop to 1:64 or less within eight to 12 months. A diagnosis of a recent or active infection of babesiosis can be made on a titer of 1:64 or greater.

Inoculation of a rodent (hamster, guinea pig or gerbil) with the patient's blood is another procedure used to diagnose suspected cases of babesiosis. A portion of a 5 ml. blood specimen, from the suspected infected patient is inoculated intraperitoneally into a hamster. If the patient is infected, the organisms can be demonstrated within the erythrocytes in a smear of the animal's blood after a few days. The finding of characteristic parasite morphology after the transmission of the infection to a rodent is the major

criterion for the identification as Babesia microti.

There does not appear to be any known drug that is entirely successful in treating this disease. In non-life threatening infections, symptomatic support and antipyretics are usually sufficient. In serious and lifethreatening infections, pentamidine is suggested. It appears to be at least partially effective in controlling clinical manifestation and decreasing parasitemia. Chloroquine has been used most often in babesiosis, often giving symptomatic improvement, but does not appear to have direct activity against the organism.

Summary

This is a case of a 56-year-old woman with a protracted febrile illness, who was diagnosed as having an infection due to *B. microti*. The uniqueness of the case is that it was diagnosed in Indiana, despite being contracted on Long Island. This case warns us that

in today's society of widespread travel babesiosis may present itself in a context far removed from its usual setting, the Coast of New England.

REFERENCES

- Anderson AE, Cassady PB, Healy GR: Babesia in man: Sixth documented case. Am J. Clin Pathol, 61:612-618, 1974.
- Desowitz RS: Ora and Parasites. Harper and Row, Hagerstown, Md., pp 202-204, 1980.
- Francioli PB, ct al: Response of babesiosis to pentamidine therapy. Ann Intern Med, 94:326-330, 1981.
- Healy GR: Babesia infection in man. *Hosp Pract*, 14(6):107-116, 1979.
- Healy GR, Ruebush TK II: Morphology of Babesia microti in blood smears. Am J. Clin Pathol, 73:108-109, 1980.
- Healy GR, Walzer PD, Sulzer AJ: A case of asymptomatic babesiosis in Georgia. Am. J. Trop. Med. Hyg, 25:376-378, 1976.
- Miller LH, Neva FA, Gill F: Failure of chloroquine in human babesiosis (Babesia microti). Ann Intern Med, 88:200-202, 1978.

Bogus Records Used to Dupe Doctors for Drugs

Police narcoties investigators are warning Indiana physicians that at least three individuals are showing up at doctors' offices who are misrepresenting themselves with falsified medical records in an attempt to obtain controlled drugs.

A January 25 alert from the Indi anapolis Police Dept. states that the individuals are presenting out-of-state hospital records, all of which indicate a need for follow-up treatment with one or more of the following drugs:

- Dilaudid tablets 4 mg
- Flexeril tablets 10 mg
- · Theo-Dur tablets 300 mg
- Tagamet tablets 200 mg
- Noctee capsules 250 mg
- Dilantin Kapseals 100 mgPhenobarbital tablets 1/2 gr
- The police have identified three specific deceptions:
- White female using medical records from Miami Valley Hospital, Dayton, Ohio (Hospital No. 733674-1). The record indicates she is 48 years old and has "small cell carcinoma of the right lung." It states that she has been kept comfortable by using Dilaudid, Theo-Dur, Tagamet, Stress Tabs and Noctee. The record has been forged and has shown up under the following names: Ellen Roberts, Emma Sanders, Irene Tauge, Hellen Clements, Mabel Craig, Edna Smithers, Doris Henderson, Alice Jaggers, Alma Bradshaw, Thelma Cook, Dorris Vernon, Betty Lash, Ruth Counts and Emma Godsey.
- 25-year-old male using medical records from Arlington Hospital, Arlington, Va. (Hospital ID No. 16229). These records reflect that the patient was involved in a head-on collision Feb. 28, 1984. The records, dated April 4, 1984, have been signed by several

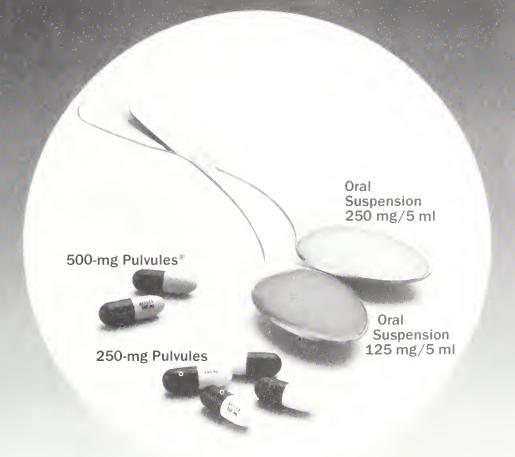
physicians, none of whom can be verified as working in the hospital. The records contain medical orders for Dilaudid and Flexeril.

• 34-year-old white male using medical records from the V.A. hospital in Miami, Fla. They indicate the patient has a "malignant brain abcess, aortic stenosis, subclavian IV (right shoulder), and cerebral angiogram." The records are signed by a physician who has never worked at the hospital. The records state the patient was discharged on Dilantin, Phenobarbital and Dilaudid.

In most cases, the records contain misspellings which, although not flagrant, are noticeable.

To report information, eall the Indiana State Police Drug Diversion Unit, Trooper Steve King, at (317) 232-8379, or the Indianapolis Police Dept., Narcotics Branch, Det. Al Simmons, (317) 236-3390.

Easy To Take



Keflex[®] cephalexin

Additional information available to the profession on request.



Dista Products Company
Division of Eli Lilly and Company
Indianapolis, Indiana 46285
Mfd. by Eli Lilly Industries, Inc.
Carolina, Puerto Rico 00630

Public Law 146: An Indiana Advantage

n 1975, the year the Indiana Mal practice Act became law, Americans were filing 3.3 medical malpractice claims for every 100 physicians annually. Few physicians in 1975 questioned the use of the term, "Medical Malpractice Crisis" in describing the situation at that time. By comparison, today's increased rate of filing malpractice claims and the increased number of million dollar-plus suits should be more alarming to physicians, as well as our public.

The New York Times recently cited AMA sources in a front-page lead article, stating that Americans are filing more than three times as many professional liability claims as they did 10 years ago and are winning record settlements. These AMA reports stated that 20 claims were filed for every 100 physicians in 1983. The advent of such escalating litigation has brought panic once again to the arena of professional liability risk management. Evidence of this is seen in such states as New York, where the annual premium for Orthopedics, Obstetrics and Gynecology, and Neurosurgery has exceeded \$100,000 per annum. An equally disturbing picture of crisis in the medical malpractice market is seen in Florida where each year one of every three physicians are sued. This situation is further aggravated by the fact that the Florida Medical Association-sponsored professional liability insurance firm has passed into receivership.

Much of what we see happening throughout the rest of the nation, however, is remarkably non-existent in the state of Indiana. Our professional liability risk experience has been comparably benign. The effect of defensive medicine on medical costs alone is reassuringly low in Indiana.



LAWRENCE E. ALLEN, M.D.
President
Indiana State Medical Assn.

The estimate of defensive medicine in Indiana is approximately 8%, as compared to 30% in surrounding states. Medical malpractice insurance rates alone are an undeniable reminder that Public Law 146 is working in Indiana and working well. Last year our premium rates averaged 2 1/2 to 4 times less than the surrounding states at our borders, namely, Michigan, Ohio, Kentucky and Illinois. Consider, for instance, that Fort Wavne Medical Protective recently identified the premium rates for neurosurgery in Cook County to be approximately \$76,000 per year. As our neurosurgeons practicing in the state

of Indiana will attest, their rates are far below this figure. Physicians Insurance Company of Indiana, for example, recognizes six classes of claims insurance, with neurosurgeons and other surgical specialties such as cardiovascular disease, orthopedic and thoracic making up Class 6. Such physicians in Class 6 have a base insurance premium rate of only \$5,046 per annum, and when coupled with the 50% surcharge, the annual premium rate for neurosurgeons is \$7,569, or one-tenth that for neurosurgeons in Cook County.

The happy benefits of such a healthy state of medical professional risk management and patient compensation in Indiana is such that citizens in this state are receiving a \$300 discount each time they go in the hospital. These figures are substantiated by the regionalized rates of DRG reimbursement for hospitals. As Indiana hospitals are reimbursed at the level of regional rates, our hospitals are actually realizing a DRG blessing rather than a DRG burden.

Certainly, lower health care cost is an advantage that each and every Indiana citizen can realize, as well as every Indiana industry. This Indiana advantage based on a stable medical malpractice cost experience directly favors the industries located in this state, as this translates into lower health care costs for their employees. I would think this would be the single most attractive inducement for industries to relocate in the state of Indiana. I have directly communicated this to Governor Robert Orr, and I have further emphasized to him that the citizens in this state have reason to be proud of our Indiana advantage, made possible by Public Law 146.

Wrong Size?





Knowing exactly what size you need can sometimes be a problem — especially if you're talking about medical office computers. Too often, medical practices end up with a computer that is either too small or too big for their needs. If your decision is based only on price and you buy too small, you soon find that you've outgrown your "new" system, and now need a different one. If you buy too big, you may find that you've spent more than you should have, wasting thousands of dollars. So, where do you turn?

Now, you can get help from the *Professional Medical Consultants* at Advanced Information Systems. At Advanced Information Systems, our only business is working with medical practices that are considering automation. We offer a free Physician Practice Profile to evaluate your office needs. If you don't need a computer system, we'll tell you. But if you do, we have a complete line of medical systems tailored specifically for your practice — regardless of size or speciality. From accounting applications and word processing to an exclusive Medical Records System, Advanced Information Systems creates a Total Practice Management environment for you.

Just because there may be a designer label on a computer does not necessarily mean it will fit you. Get the right computer system for your practice. Call or write today for more information. Advanced Information Systems. We can help.

	NAME
	ADDRESS
STATE	CITY
	ZIP
	ZIP



ADVANCED INFORMATION SYSTEMS

Understanding your medical practice

9101 Wesleyan Road • Suite 101 • Indianapolis, Indiana 46268 • (317) 875-8577

Joint Ventures: Wave of the Future

A Message from the Executive Director

DONALD F. FOY Executive Director Indiana State Medical Assn.

NRECENT YEARS, many physicians have stood by helplessly as their hospitals signed agreements with HMOs, opened satellite clinics and freestanding emergency centers, and took other steps that put them in direct competition with physicians. Hospitals are still moving into new ventures; but at least now, instead of competing with their staffs, a growing number are offering physicians a "piece of the action"

Joint ventures are a relatively new phenomenon in health care. When physician and hospital services were in great demand, there was no need for joint ventures. However that has all changed as a result of the physician glut, the proliferation of HMOs, PPOs, and Convenience Chines as well as from pressure from government and business to contain costs. It is interesting to note that recent stigles confirm that physicians, or the magic are seeing 28 fewer patients (week than they did 10 years ago. It 108) hospitals nationwide experienced a 20% drop in admissions and a III op of two days in length of stay

Some observers believe the time has come for the two most nations which in health care to get together. It may be the only way physician will be about a control of to mental about a over the practice of medium. With so may pressures togas that can blow a net hospital and medical of treations a joint venture may

be worth considering just to create a common bond.

Definition of Joint Venture

What is a joint venture? Simply stated, it is an agreement between two parties—in this case, a hospital and one or more members of its medical staff—to go into business together. Both parties usually assume some financial risk and stand to gain if the venture is successful.

Purpose of a Joint Venture

While necessity may invent more uses for the arrangements in the future, most joint ventures are currently designed to accomplish one of the following two purposes:

- Serve as a hedge against competition. Physicians are entering joint ventures with hospitals in the form of HMOs. PPOs, or Freestanding Urgent Care Centers.
- Provide investment opportunities. Joint ventures in real estate and new technology are being initiated by physicians and hospitals to provide tax shelters and investment return

Thus far, most physicians are entering joint ventures in order to protect and enable; their patient base. The basic idea is to package hospital and physician into one unit that can go into the marketplace and deal with employers and insurers. At the same time it preserves independent office practice.

Actually, there has been more talk that real action on joint ventures. Except for real estate deals, few ventures are of the ground. Neverthetess, according to management consultants and attorneys who specialize in such deals, there is a great amount of interest from both hospitals and medical staffs.

Employers are looking for plans that combine doctors and hospitals into a package for a fixed price. A physician alone cannot offer a company that kind of comprehensive service, nor can a hospital without the cooperation of its medical staff. Instead of hospitals competing with physicians, it makes more sense for the hospitals to bring them in as investors. In areas where Freestanding Emergency Centers are eroding the patient base for both physicians and hospitals, a joint venture can, in effect, provide both parties an opportunity to at least lose patients to a Free-standing Emergency Center they own.

Organizational Mechanisms

The limited partnership is being used frequently as the basis for joint ventures for the purchase of expensive new technology (nuclear magnetic resonance imaging equipment, digital substraction angiography machines etc.) where the hospital might not be able to afford or obtain certificate of need approval on its own but physician involvement might make it possible. Other areas under consider ation for joint venturing include med ical office buildings, imaging centers, birthing centers, health clubs, diagnostic service centers, and general office buildings

The limited partnership arrangement between the hospital and its physicians provides physician investors with many of the same protec-

tions as a corporation and the added advantages of investment tax credit and depreciation. Hospitals have always expected physicians to be loyal but they never gave them any incentives. A joint venture aligns the economic interest of the medical staff and the hospital.

The other organizational format that is being suggested for joint ventures is the incorporation of the medical staff. Proponents of incorporation often cite enhancement of physician bargaining power as its chief benefit. A formally constituted organization may provide a necessary vehicle through which physicians may interact as a cohesive unit with hospital governing boards, payors, and entities contracting for the purchase and distribution of health care services. As a focal point for professional solidarity and influence, the corporation is in a position to promote physician interests relating both to the maintenance of quality medical care and to the furtherance of entrepreneurial objectives.

Another related advantage of incorporation asserted by some is its unequivocal confirmation of the medical staff's status as a separate legal entity when performing functions related to the formulation, adoption, and enforcement of standards of patient care. The medical staff's discharge of such functions through a corporate body also allegedly would provide greater protection to individual staff members against potential liability suits by patients injured as a result of the hospital's negligent screening or supervision of physicians admitted to its staff.

The principal concern physicians should have regarding joint ventures is whether they will encounter antitrust problems. Joint ventures will have to be carefully structured in ways that do not allow physicians who are not involved to charge that it constitutes an illegal boycott. Although there is no question that joint ventures are the wave of the future, the issue of "who's in and who's out" may be the conflict of the next dec-

ade. Perhaps if physicians have the option to participate in a variety of joint ventures, the less likely any physician will feel left out.

Physician incorporation plans designed to promote entrepreneurial interests through establishment of hospital joint ventures or contractual networks may be pursued to great advantage, provided that certain antitrust limitations and risks are recognized. Many of the legal risks may be mitigated, however, through prudent legal and organizational planning. Also, it is likely that physician involvement in fee-setting endeavors may be justified when there is substantial practice integration or assumption of underwriting risks by participating physicians. On the other hand, if the same staff-based physician corporation assumes responsibilities for hospital functions that lie within the province of the organized medical staff, it increases its vulnerability to litigation and potentially its exposure to negligence liability.



KOALA CENTERS opened the Midwest's only treatment center exclusively for adolescent alcoholics and drug abusers March 1. The 60-bed facility tabove) is in the former Pleasant Run Children's Home at 1401 S. State Ave., Indianapolis The original building was opened in 1871 for the shelter and care of orphans. It (and the 91/2 acres it occupies) has been declared a National

Historic Site. The Koala Adolescent Center's staff was selected for expertise in issues confronting the young alcoholic and drug abuser; they will be dedicated to providing a place and service that will give the young person a new start and that will allow families to experience hope for what they may have thought was lost.

1984 MEMBERSHIP REPORT

December 31, 1984

County	PAID	EXEMPT	ISMA TOTAL	AMA TOTAL	County	РАЮ	EXEMPT	ISMA TOTAL	AMA TOTAL
Adams	11	2	13	6	Miami	18	3	21	10
Bartholomew-Brown	71	14	85	52	Montgomery	20	4	24	13
Benton	4	1	5	2	Morgan	17	4	21	10
Boone	17	6	23	6	Newton	4	1	5	0
Carroll	8	2	10	8	Noble	13	1	14	10
Cass	33	7	40	16	Orange	5	1	6	3
Clark	90	3	93	46	Owen-Monroe	126	15	141	61
Clay	11	2	13	6	Park-Vermillion	10	2	12	6
Clinton	12	3	15	8	Perry	5	1	6	4
Daviess-Martin	18	5	23	10	Pike	1	0	1	1
Dearborn-Ohio	24	1	25	13	Porter	104	6	110	81
Decatur	10	3	13	6	Posey	4	$\frac{\circ}{2}$	6	3
Dekalb	13	6	19	10	Pulaski	5	1	6	3
Delaware-Blackford	135	17	152	79	Putnam	11	3	14	7
Dubois	34	1	38	19	Randolph	13	6	19	4
Elkhart	125	19	141	85	Ripley	7	2	9	4
Fayette Franklin	22	2	24	12	Rush	9	5	14	4
Floyd	64	5	69	36	St. Joseph	254	54	308	206
					1			8	2
Fort Wayne-Allen	380	68	448	288	Scott	7	1		14
Fountain-Warren	9	3	12	6	Shelby	20	3	23 2	14
Fulton	8	1	9	3	Spencer	1	1	10	4
Gibson	5	5	10	3	Starke	8	2		7
Grant	76	14	90	49	Steuben	12	4	16	
Green	12	6	18	7	Sullivan	8	5	13	6
Hamilton	32	1	33	15	Tippecanoe	178	28	206	137
Hancock	28	2	30	18	Tipton	11	3	14	6
Harrison Crawford	8	1	9	5	Vanderburgh	341	47	388	214
Hendricks	32	2	34	20	Vigo	128	23	151	64
Henry	33	5	38	18	Wabash	23	2	25	11
Howard	78	45	93	63	Warrick	11	1	12	1
Huntington	17	5	22	2	Washington	8	2	10	4
Indianapolis-Marion	1235	212	1447	869	Wayne-Union	70	12	82	51
Jackson	21	5	26	12	Wells	40	13	53	38
Jennings	1	1	2	()	White	6	2	8	5
Jasper	9	2	11	9	Whitley	11	2	13	7
Jay	15	2	17	8	RESIDENT				
Jefferson					MEDICAL				
Switzerland	30	6	36	23	SOCIETY	73	0	73	31
Johnson	-12	3	45	23	TOTALS:	5267	835	6102	3478
Knox	55	()	61	38					
Kosciusko	25	1	26	16					
Lagrange	9	2	11	ł	FOR INFORMATI	ON:			
Lake	560	70	630	367	1983 Totals	5130	789	5919	4291
Laporte	95	11	106	72	1982 Totals	5066	752	5817	4404
Lawrence	11	3	1.1	18	1981 Totals	4942	719	5661	4482
Madison	109	18	127	55	1980 Totals	4786	707	5493	1379
Marshall	18		19	1.1	1979 Totals	4691	662	5353	4287

Motrin[®] Ibuprofen, Upjohn 600 mg Tablets



More convenient for your patients.

Upjohn

EMPLOYEES APPRECIATE THE PAYROLL SAVINGS PLAN.

JUSTASK THE PEOPLE AT MANUFACTURERS HANOVER.

"Savings Bonds provide a good interest rate. Moreover, the payroll deduction is a convenient way to save."—James F. Howard

"With market-based interest rates, Savings Bonds are a secure and competitive savings instrument."

—Suzanne O'Toole

"With a guaranteed minimum of 7.5%, there is no risk to principal and appreciation is assured."

—Mark Young





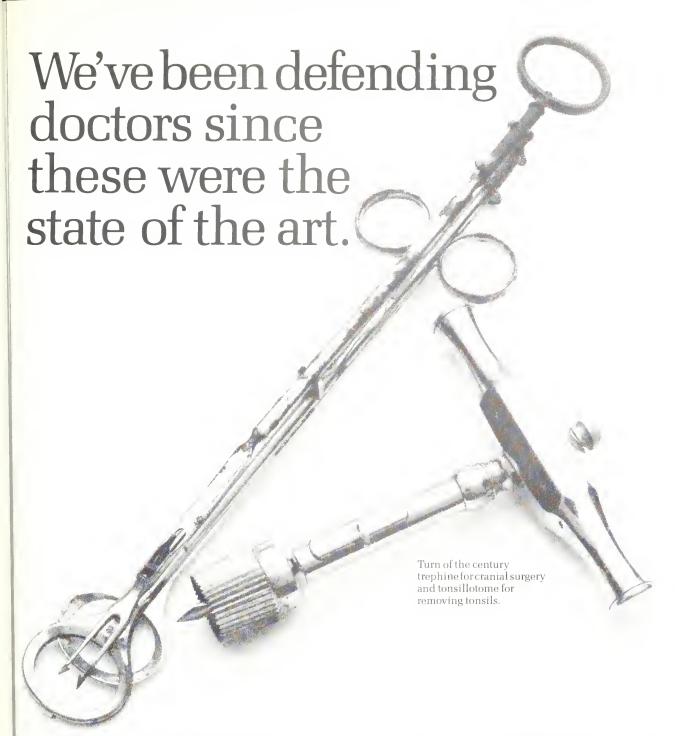


U.S. Savings Bonds now offer higher, variable interest rates *and* a guaranteed return. Your employees will appreciate that. They'll also appreciate your giving them the easiest, surest way to save.

For more information, write to: Steven R. Mead, Executive Director, U.S. Savings Bonds Division, Department of the Treasury, Washington, DC 20226.



U.S. SAVINGS BONDS Paying Better Than Ever



These instruments were the best available at the turn of the century. So was our professional liability coverage for doctors. In fact, we pioneered the concept of professional protection in 1899 and have been providing this important service exclusively to doctors ever since.

You can be sure we'll always offer the most complete professional liability coverage you can carry. Plus the personal attention and claims prevention assistance you deserve. For more information about Medical Protective coverage, contact your Medical Protective Company general agent.

14:05

MEDICAL PROPERTYE CONDUNT

BOSKE WOUNT GUDGOOTT

Vernon E. Hoover, John J. Lindenschmidt, Philip R. Young Suite 237, 6100 North Keystone Avenue, P.O. Box 20576. Indianapolis, Indiana 46220, 317/255-6525 Robert B. Newell, Suite 265, 2260 Lake Avenue, Fort Wayne, Indiana 46805, 219/422-4783



AUXILIARY REPORT

Judy Koontz (Mrs. James A.) President, ISMA Auxiliary

It is with great pleasure that I announce the dates, location and agenda for our annual House of Delegates convention, to be held April 23-25 in Vincennes.

I have truly enjoyed my year as your Auxiliary president. "Thank you's" are in order to the ISMA, the ISMA staff, the Auxiliary board and the membership. It has been a good year for working together and for CARING AND SHARING to help make our world a better place for all. Thank you for making me feel happy (and yet sad, too) as I prepare to leave this office. Thank you for the RAINBOW OF MEMORIES!

Following is an invitation from our convention co-chairmen, and the agenda. Please encourage your spouse to attend. Why don't you plan to join her for the RAINBOW CONNECTION banquet on Wednesday evening?—Judy Koontz, president

Make Someone Happy by Caring and Sharing: The Rainbow Connection April 23-25, 1985

The size of Vincennes, a small community on the Wabash River, is deceiving. An historical landmark, regional health center, and an academic complex with an international faculty and student body, Vincennes will surprise you. Let us show you how!

The Knox County Medical Auxiliary has been busy making the necessary "connections" to assure the delegates and guests to the 41st House of Delegates a rainbow variety of activities. Busy workers have prepared an unusual and colorful package using local talent and services designed to help you get to know Vincennes.

Your visit will begin when you

"connect" with our apron-clad greet ers at our newly remodeled Holiday Inn on Tuesday, April 23. Tuesday evening's activities will introduce you to both Vincennes University and our historical heritage—a delightful evening you won't want to miss!

A tour of historic Vincennes? Shopping? How about a workshop on stress management during Wednesday's free time? It may make Thursday's House of Delegates session go smoothly!

We don't want to reveal all the colors in our rainbow, but let us en-

tice you with this—the nationally recognized Pantomime University Band to add color to Wednesday evening's banquet. Sound interesting? Wait until you see them!

The Knox County Medical Auxiliary knows that you will flourish under our rainbow. The pot of gold is here. By caring and sharing, we hope that you will leave with new friendships, enthusiasm for ISMAA—and a promise to return.—Linda Kinman and Connie Turner, convention cochairmen

Agenda: 41st Annual House of Delegates The Indiana State Medical Association Auxiliary

> April 23, 24 and 25, 1985 Holiday Inn, 600 Wheatland Road Vincennes, Indiana

TUESDAY, APRIL 23 9:30 a.m. until 5:00 p.m. 10:00 a.m. until 4:00 p.m. 6:00 p.m.

Registration
Board and Committee Meetings
"Historical Connection" Dinner
To honor past presidents.
Entertainment.
Vincennes University.
Candlelight tour of the
Harrison Home to follow.

WEDNESDAY, APRIL 21 7:30 a.m. until 5:30 8:45 a.m. until 12:00 noon 12:30 p.m. until 2:00 p.m. 2:00 p.m. until 3:30 p.m. 3:30 p.m. until 5:00 p.m. 6:00 p.m.

Registration
House of Delegates
Luncheon with Speaker
Open Budget & Bylaws Hearings
Stress Management Seminar
Reception-Cash Bar
"Rainbow Connection" Banquet
Entertainment

(Spouses are invited and urged to attend)

THURSDAY, APRIL 25 7:30 a.m. until 11:00 8:45 a.m. 12:30 p.m.

Registration
House of Delegates Reconvenes
"Star Connection" Luncheon
Installation Ceremony

The Auxiliary's Day at the Top



Sen. Blankenbaker

Demonstrating their awareness and concern for medical legislative activities, ISMA Auxiliary members from 10 counties spent a day "At the Top," touring the State Capitol Building in Indianapolis Jan. 24.

Skyline Club, Sen. Virginia M. Blankenbaker (R-Indianapolis) discussed issues relating to women and the family, with specific reference to bills being considered by the 1985 legis-

In the Capitol Building, the Auxil-

PHOTOS BYSUSANNE MILLER

After a reception-luncheon at the

iary visited various assembly rooms while the legislature was in session and toured such offices as those of the governor, lieutenant governor, secretary of state and the attorney general. They also visited the Supreme Court room where Paul Lombardo, high sheriff, discussed cases recently considered, crime statistics and other crime-related information.

During the day, sons and daughters of Auxiliary members served as pages for senators and representatives of their districts.



On tour in the lieutenant governor's office.



High Sheriff Lombardo

BOOK REVIEWS

Basic and Clinical Pharmacology

Edited by B. G. Katzung, M.D. Copyright 1984, Lange Medical Publications, Los Allos, Calif. Second edition, 888 pages, softcorer, \$26.

Basic and Clinical Pharmacology, in this its second edition, provides a comprehensive textbook on pharmacology for health students and practitioners. Like all Lange Medical publications, it is current because of the praiseworthy Lange custom of frequent revisions.

The well qualified authors are, for the most part, from the San Francisco area. The editor, Dr. B. G. Katzung, is Professor of Pharmacology, Department of Pharmacology, University of California, San Francisco. All chapters were thoroughly revised for this edition, and chapters on antiparasitic chemotherapy and veterinary pharmacology were added. Also added was a useful new appendix on tradenames and corresponding generic names.

The book is sturdily bound with a flexible cover and is appropriately supplied with line drawings, charts, and diagrams. The index is unusually complete.

This volume is enthusiastically recommended for its target readership.
W. D. Snively Jr., M.D.

Evansville
Internal Medicine



"We thought we had you covered for every possible accident, but you sure fooled us."

The AMA and U.S. Health Policy Since 1940

By Frank D. Champion, Copyright 1984, Chicago Review Press, Chicago, 603 pages, hardcover, \$25.

This informative and well written history of American medicine covers the period from World War II to the present. Dr. Morris Fishbein covered the period from about 1924 to World War II; however, this volume provides excellent source material for both physicians and all other ancillary personnel. The book is cleverly divided into four sections:

- 1. The environment
- 2. The organization
- 3. The events
- 4. The interfaces.

The environment covers the numerous advances in medicine and surgery, intermixed with the political developments and attempts of politicians to gain control of medicine. The manner and development of specialization is recorded in a very interesting manner. The organization section describes the function of the AMA and its own political activities during this period. This section is especially well written and informative for those who wish to know about the chronological development of the American Medical Association and how it functions today as well as developments in medical education. The events section is an excellent review of the numerous intertwining political and social influences and the effects of technological developments during this period. The author also clearly describes the effects of both Medicare and Medicaid on all medical institutions and ancillary health care groups. The interfaces deal with the development of newer systems of health care delivery, medical legal problems and changes in our political and practice environment.

This text should be read by all physicians and all other personnel involved in providing medical care or interested in the legal framework of medicine.

I. E. Michael, M.D. Indianapolis Internal Medicine

Basic Science for the Practicing Urologist

By Michael C. Magee, M.D. Copyright 1983, Cambridge University Press, London. 338 pages, \$49.50.

There is more than enough information in this remarkable textbook to form the curriculum for a Master's Degree in Urology. Dr. Magee has an outstanding grasp of the basic science underlying the specialty of urology, and he also knows clinical urology itself.

His book is divided into 10 chapters—each begins with basic science and ends with practical application. Neuroendocrinology, sexual function and each of the organs of the urinary system are covered in great and lucid detail. One of the principles stated by the author in the "Preface" is that genitourinary pathology can be elucidated through a neuroendocrine approach. This objective is admirably achieved.

The exceptional and unique chapters certainly must be those regarding sexual function, behavior and performance and also fertilization. These alone will be a reference source for years because the author's information is so timely and modern.

Altogether, practically a "tour de force" by Dr. Magee. It is recommended to all medical students and practitioners of whatever age or era. It will certainly take pride of place in my urological library.

Rodney A. Mannion, M.D. LaPorte Urological Surgery

Macmillan Publishing has released Magie Bullets. The author is Grant Fjermedal, an award-winning writer on scientific and medical subjects. The basic subject of Magie Bullets is cancer research. Fjermedal, through his personal interaction with cancer victims, visits to laboratories, and behind-thescene explorations, presents a complex scientific adventure story in understanding and human terms. 244 pages, \$15.95.

chight

INDIANA GAZETTE

TALWIN®NX...BUILT-IN PROTECTION AGAINST MISUSE BY INJECTION

Major Analgesic Reformulated

Now contains naloxone, a potent narcotic antagonist

Extra security added to proven efficacy and safety

No longer do doctors have to deny patients the benefit of an effective oral analgesic for fear of its misuse by injection.

Winthrop-Breon Laboratories has met a nagging problem by reformulating TALWIN[®] 50 (pentazocine HCl tablets) with the addition of naloxone, equivalent to 0.5 mg base. The reformulated product is called TALWIN[®] Nx.

The original formulation had been subject to a form of misuse among street abusers known as "T's and Blues." TALWIN 50 and PBZ, an antihistamine, would be ground up together, put into solution, and injected intravenously. The combination produced a heroin-like high. Because naloxone is a narcotic antagonist when injected intravenously, it acts to nullify any high a "T's and Blues" addiet might expect from the pentazocine in a combination of TALWIN Nx and PBZ. When taken as directed orally, the naloxone component of TALWIN Nx is inactive. Thus, TALWIN Nx continues to be a safe, effective, oral analgesic for the relief of moderate to severe pain, now providing added security against misuse.

Registered trademark of Ciba-Geigy Corp for tripelennamine.



The reformulation of Talwin 50 to Talwin Nx involved the addition of 0.5 mg naloxone to help prevent misuse by injection.

Winthrop-Breon

Talwin

Analgesic for Oral Use Only

Contraindications: Pigner or of city of

ANVIV. No enabled for orange, mily leaven potentially, attail to a time only in the interest of PAVVP. The hydrogen transfer depends on our driving with other substances, and Drug Abuse and Dependence and the interest of t

resistance the calculation of the control of the co million in only in a set of the anticlarity, patients, in the property of the

compressions of the effect of softward before duratumed and the effect of the effect o The relation of the CNS the restriction of the confidence confidence of the CNS the restriction of the confidence of the

configure to run to formalist on that is, still entired to patient in the state of the state page and ensymmetries of the expectability of the expectation of the state page and ensymmetric with other substances, and what is not contained in a faborie to a state of the page to our manner of dependent and without the largest own and the configuration of the engineers of the state o

Winthrop Breon WIN 4 4 HI ISER

BOOK REVIEWS_

Thirty Days to **Better Nutrition**

By Virginia Aronson, R.D., M.S. Copyright 1984, Doubleday and Co., Inc., New York. 233 pages, softcover, \$10.95

One would expect a book originating in the Department of Nutrition, Harvard University to be authoritative and to fill a geraine need. This book fulfills both criteria and, in addition, is highly readable. It presents a 30-day program that can lead the individual whether lay or health professionalthrough the maze of scientific nutrition to changing his eating habits for the better. The text is packed with an enor mous amount of down-to-earth information on nutrition. One example is the way it deals with fiber. First, it describes the foods that contain considerable amounts of it, then it tells in specific terms how fiber benefits the digestive system through increasing bulk, speeding the passage of food through the intestines, and decreasing straining with elimination. It then outlines the possible health benefits from generous amounts of dietary fiber. It cautions that the optimal dietary quantity has not yet been established, but it warns that most Americans are perpetuating a trend toward decreased dietary fiber.

The book has the format of a workbook, encouraging the reader to fill in numerous blanks and to test his knowledge of nutrition as he proceeds. For an individual to go through the book in the manner suggested requires a real desire to improve one's nutrition and is necessarily time consuming. But even those who do not participate actively will be richly rewarded in terms of nutritional knowledge by merely reading the book. Provocative chapter titles include "Dieting Dos," "Nutrition-In the Supermarket," "Nutrition - and Dining Out," "Snacking Smarts," "Going Too Far," "How About Health Foods," "Bad to Add Additives?," "Diet and Drugs," and a stimulating "End of the Month Summary."

It would not be going too far to

describe this book as the alpha and omega of applied nutrition. It is heartily recommended for physicians, other health professionals, teachers, and especially for the general reading public. Its publication should be regarded as a red letter event.

W. D. Snively Jr., M.D. Evansville Internal Medicine

Ask Claude Pepper

By Claude Pepper, Copyright 1984, Doubleday & Co., Inc., New York, 247 pages, softcover, \$7.95.

As you know, Congressman (formerly Senator) Claude Pepper is the octogenarian, self-appointed "patron saint" of retirees in America. This softcover book is a compilation of columns which he has written called "Ask Claude Pepper." It covers topics relating to Social Security, working in old age, managing money as an older citizen, and various aspects of the bureaucracy as it applies to this segment of our society. It is chock-a-block full of interesting facts couched in clear English, which says as much about the author as about his subject.

Any older person would learn much useful information from reading this book. It suffers just a little from its news column source insofar as a cohesive format is not among its good points.

The "Champion of the Elderly" is quite a man though.

> Rodney A. Mannion, M.D. LaPorte Urological Surgery

Little, Brown and Company announces Consent to Treatment: A Practical Guide, by Fay A. Rozovsky, J.D., M.P.H., a lawyer with broad experience in health care. The book contains extensive information, organized for easy reference. It covers informed consent and its exceptions in all forms, in all settings, and for all groups. \$57.50.

Complications in Surgery and Trauma

Lazar J. Greenfield, M.D., Editor. Copyright 1984, J. B. Lippincott Co., Philadelphia, 945 pages, \$70.

Dr. Greenfield, professor and chairman of the Department of Surgery, Medical College of Virginia, Richmond, has enlisted 67 contributors to cover the variety of problems presented in this comprehensive text. Following the chapters on trauma, it deals with surgical complications of *all* body systems in a logical sequence. Anatomy, surgical technique and pathogenesis are not discussed except as they pertain to avoidance of complications.

In the section on surgical wounds and trauma we learn that a Cornell University group reported that 72.1% of the victims of automobile crashes suffered facial trauma and 8.7% had neck and cervical spine injuries. In such cases the rapid institution of measures to combat airway obstruction, hemorrhage, shock or bacterial infection should be begun at once if indicated; then more specific measures, depending on the location and extent of the injuries. The importance of eliminating hematomas, especially if contaminated, and correction of any other condition interfering with adequate blood supply to tissues is emphasized. The author stresses the need for careful debridement of contaminated abrasions and cuts, and gives useful tips such as the employment of a 35 ml. syringe fitted with a 19 gauge needle to produce a stronger jet in cleaning out a wound. Animal bites and human bites are treated differently because different microorganisms are introduced by each. Anaerobic infection is much more common in the latter; anti-infection therapy must take these differences into consideration.

In the section describing complications of bony injuries to the face, adequate details of surgery for each type are given to limit subsequent facial deformity as much as possible. The special problems of electrical burns are presented by Drs. David H. Frank and Jack C. Fisher, plastic surgeons, University of California.

The section on wounds in surgery and trauma includes discussions of the complications of skin grafting, local burns, flap surgery, breast surgery and reconstruction, lymphadenectomy and lymphedema. Always, significant points in prevention of later complications are stressed. For instance, in the discussions on breast surgery the author, J. Shelton Horsley III, emphasizes the necessity of adequate exposure to the whole axilla in the search for involved lymph nodes, but the avoidance of an incision going up into the patient's shoulder, resulting in an ugly scar. He calls attention to the care necessary to keep from injuring the brachial plexus. Also emphasized is the necessity to secure surgical specimens of adequate size for examination for presence and extent of malignancy and for receptor activity if cancer is found.

In the section dealing with the alimentary tract, the special features associated with complications of surgery of the various anatomical divisions of the tract are quite adequately presented by well known authorities. Again, there is emphasis on general principles to be followed to avoid later complications. Dr. Hunter H. McGuire, professor of surgery at the University of Virginia, reminds us that a certain degree of ileus follows all operations on the intestinal tract. Patients must be aware of this to prevent undue anxiety. The extent of ileus is usually in proportion to the amount of irritation to splanchnic nerves from handling the gut, and visceral and retroperitoneal dissection.

The experienced surgeon will reassure the patient and house staff about the rather constant diffuse pain that follows all abdominal surgery for 48 hours but will be quickly alerted when more localized pain comes after this time especially if accompanied by more localized incisional swelling, dusky skin and sometimes a little "dishwater" drainage. Quick drainage of localized abscesses may prevent more serious generalized peritonitis and/or fascial destruction. Intraperitoneal abscesses, especially in Crohn's disease, suppurative appendicitis,

diverticulitis, etc., may be present at the time of surgery. Here the need is to discover all of them and secure adequate drainage in the proper sites. Always anti-infective treatment, including measures against anaerobes, must be started at once and changed if cultures reveal that the most satisfactory initial regimen had not been instituted. More important than the antibiotics, however, is adequate drainage.

The author points out that surgery for fistulas is hazardous for many reasons, particularly if the patient is in a poor nutritional state. More than half of fistulas will heal spontaneously if proper nutrition of the patient is restored. He points out the hazards of surgery for intestinal obstruction—the careless lysis of adhesions, the failure to detect and remove necrotic bowel due to interference with its blood supply, and the necessity sometimes to perform ileostomy when there is stenosis and necrosis of bowel from pelvic irradiation.

These are merely samples of the kind of extensive information supplied regarding complications encountered in surgery of all body systems—thoracic, cardiovascular, endocrine, central nervous system, genito-urinary and musculoskeletal. Each section has a very adequate bibliography. In the back of the book is a synopsis of surgical complications with their relative incidence arranged by body organs involved. It will be useful for tissue and peer review committees.

This is a book that should be indispensable for surgeons. However, it should be of value to most non-surgeon physicians as well if they are seeing patients day by day. This superannuated reviewer found it exciting and was impressed by its scholarly soundness.

> Paul S. Rhoads, M.D. Richmond Internal Medicine

The Society for the Right to Die has published a *Handbook of Living Will Laws 1981-1984*. The Handbook sells for \$5. *Handbook of Enacted Laws*, published in 1981, is also for sale at the same price.

More than 50,000 reasons to buy your Professional Liability Insurance from the Leader.

Your peers. More than 50,000 physicians and surgeons countrywide who are insured with St. Paul Lire and Marine Insurance Company.

They know that The St. Paul is the nation's leading medical liability insurer and they know why. With more than 40 years of experience in the medical market, we offer a superior, flexible, comprehensive insurance protection plan. Take a look for yourself.

Our professional liability policy provides flexible limits to meet your own needs—individual limits of up to \$10 million. And there are no policy exclusions. All this and very competitive rates for Indiana physicians!

You may also want to select our optional Professional Office Package for your other property and liability insurance needs. And, no matter which coverages you choose, you'll receive the best possible claim-handling services available with local attorneys and our Indianapolis and South Bend offices. Not to mention our loss prevention risk management services which have established the industry standard!

So talk to one of the 167 Independent Agents representing The St. Paul in Indiana. And do it for the reasons that you like best.

Equipped to meet all your insurance needs.



Medical Services Division





St. Paul Fire and Manne In an incompany St. Paul Mes ory Loutre of Empany Took St. Paul Fire St. Faul Formany St. Paul Insurance Company of Efficiency Louden Fire St. Paul Insurance Company of Efficiency Louden Fire St. Paul Insurance Company of Efficiency Louising Affidiates of the St. Paul Companies Inc. Count Paul Manne and 5540.7

NEWS NOTES

IUMC Begins Bone Marrow Transplantation Program

Indiana University Medical Center has launched the state's first Bone Marrow Transplantation Program for children and adults.

The transplantation unit features a laminar air flow system in each of four rooms located at Riley Hospital for Children, Indianapolis. Special precautions are taken to maintain the atmosphere in as germ-free condition as possible since the patient's immune system is impaired during the procedure and will not recover completely for a matter of weeks after transplantation. Avoidance of infection is of the highest priority.

Marrow transplantation was developed in the 1960s as a treatment of aplastic anemia and severe combined immune deficiency disease. In recent years, transplantation has become a promising therapy for some types of leukemia.

Hyperthermia and SIDS

The following information was provided by the Indiana State Board of Health for use by editors and news directors to help them in their coverage of current public health issues.

There is no link between Sudden Infant Death Syndrome (SIDS) and bundling babies too warmly or placing them in overheated rooms, despite recent news reports connecting the two.

"Parents and others in the U.S. who were alarmed by news reports of a link between hyperthermia and 'cot death'—thinking that 'cot death' is the same thing as SIDS—were misled," said Dr. T. S. Danielson, then acting state health commissioner.

In the U.S., SIDS is defined as the sudden, unexpected death of an apparently healthy infant. A postmortem exam is needed to determine whether an infant death was due to SIDS, hyperthermia or other causes.

In England "cot death" is often applied to any sudden and unexpected infant death that is of natural causes,

which would include SIDS or hy perthermia.

News accounts in the U.S. of an article published in the British medical journal, *The Lancet* (by Anthony Stanton, M.D., a London pediatrician) assumed "cot death" and SIDS were the same thing, which they are not, Dr. Danielson said.

"Although Dr. Stanton's article appropriately describes the dangers of hyperthermia in infants, we should not think that bundling babies too warmly or keeping them in overheated rooms has any connection with SIDS," Dr. Danielson said.

Head Injury Program

The newly constructed University Heights Hospital in Indianapolis is establishing a Head Injury Program as part of its progressive care unit (PCU).

The program will be staffed by a neurosurgeon, a specialist in physical medicine, a neuropsychologist and a rehabilitative psychologist, in the persons of Drs. Karl L. Manders, Donald A. Dreyer, Lance E. Trexler, Ph.D., and William D. Alexy, Ph.D.

The main purpose of the program is to salvage head-injured patients who have not yet recovered but whose immediate need for acute care has been completed. This fills a crucial gap between acute care and rehabilitation.

Hyperbaric oxygen treatments will be an important part of the care of patients in coma induced by head injury.

FMG Task Force Formed

Several major ethnic national medical organizations will form a National Foreign Medical Graduate Task Force under the auspices of the American College of International Physicians.

The new body will study, outline and recommend solutions to the many problems facing FMGs in the United States, especially licensed practicing physicians.

Participating organizations are the Association of Philippine Practicing Physicians in America, Islamic Medical Association of North America, InterAmerican College of Physicians and Surgeons (Hispanie), Association of Pakistani Physicians, and the American Association of Physicians of India.

Further information is available from the American College of International Physicians, 3030 Lake Ave., Fort Wayne, Ind. 46805 (Antonio B. Donesa, M.D., executive director).

Aetna Seeks Applicants

Aetna Life & Casualty Insurance, which is planning to expand into the alternative health care field, is searching for a Physician Executive to join the Employee Benefit Division's Medical Department in Middletown, Conn.

The position will appeal to individuals who can "effectively utilize both clinical and managerial expertise in creative independent action." Previous leadership experience in local, state or national medical organizations is desired. Although prior administrative experience as a Physician Executive is not a prerequisite, the applicant should possess a strong clinical background either as a specialist or generalist.

For a detailed description of the position, contact Vivian Chow, Aetna, 151 Farmington Ave., Hartford, Conn. 06156 – (203) 273-0889.



"Let me put it this way—if you were a car I'd prescribe immediate scrapping."

news notes

For the Asking . . .

- "PCBs: Is the Cure Worth The Cost?" is a pamphlet prepared by the American Council on Science and Health that examines how much of the current reaction to PCB contamination is necessary and how much is due to over-reaction. "PCBs are fireresistant, an important virtue when it comes to electrical uses," says Dr. Richard Greenberg of the ACSH. "Unfortunately, most the currently available substitutes are not fire-resistant. Nevertheless, because it is feared that PCB-containing electrical devices might be hazardous to health, they are now being replaced with other types. The net result is the substitution of a potential fire hazard for a hypothetical health risk." For a copy of the report, send a long, selfaddressed and stamped (37¢ postage) envelope to PCB Report, ACSH, 47 Maple St., Summit, N.J. 07901.
- · "Planning Meals That Lower Cancer Risk: A Reference Guide" is a new book published by the American Institute for Cancer Research (AICR). It is being distributed to 30,000 health and nutrition professionals across the country. The book ranks a variety of loods on the basis of their value in a cancer preventive diet, gives daily food portion recommendations for seven types of diets for children and adults, provides sample menus, and demonstrates through sample recipes how the dietary suggestions can be incorporated into meals that lower cancer risk. The book is available for a \$5 donation from the AICR, Wash ington, D.C. 20069.
- Chemical dependence needs greater recognition by physicians and the public as a medical illness that can be treated, according to an American College of Physicians position paper. "It is costly for patients' families and friends—who must pay medical bills and bear the social brunt of the illness—and it affects innocent victims as well," declares Dr. John R. Ball of the ACP. The ACP notes that alcohol is responsible for more deaths among people aged 15 to 15 than any other single agent: the drug is in voled in at least half of all automo-

bile fatalities, 67% of drownings, 70% to 80% of deaths in fires, 67% of murders, 35% of suicides, and 85% of 11,000 annual liver disease deaths. Copies of the position paper are available from the ACP, 4200 Pine St., Philadelphia 19104.

· "Dioxin in the Environment: Its Effect on Human Health" is a 24-page pamphlet published by the American Council on Science and Health. The report says that the overwhelming body of evidence shows that dioxin does NOT produce any long-term damage to people. The report contains an account of the various encounters involving humans and dioxin and presents the evidence that humans have never been demonstrated to have suffered any long-term effects. \$2 each, with discounts for multiple copies. ACSH, 47 Maple St., Summit, N.J. 07901.

Dr. Myers Becomes State Health Commissioner

Dr. Woodrow A. Myers, Jr., 30, has been appointed by Gov. Robert Orr as the new Indiana state health commissioner. He succeeded Dr. Themen S. Danielson, interim commissioner, last month.

Dr. Myers, a graduate of Harvard Medical School, specializes in internal medicine. He left a position as assistant professor of medicine at the University of California at San Francisco. He was also chairman of the quality assurance program and cost containment task force at San Francisco General Hospital Medical Center.

Besides his M.D. degree, Dr. Myers holds a master's degree in business administration from the Stanford Business School.

He is a native Hoosier and has relatives in Indianapolis. He is a 1970 graduate of the capital's Shortridge High School.

Nineteen individuals had applied for the State Board of Health post. The governor chose Dr. Myers from three candidates recommended by a search committee.

MINET Adds AP Med News

The AMA has added a medical news feature to the GTE Telenet Medical Information Network (MINET). It is the Associated Press (AP) Medical News Service, created by AP specifically for the AMA.

Users have two choices when they enter the AP Medical News Scrvice: a menu of the day's news stories or a list of subject areas, each of which contains a week's worth of articles in that subject.

Schroeder's Hometown Doctor Featured

A Jasper physician who monitored the operation in Louisville to install William Schroeder's mechanical heart last fall was the subject of a cover article in the January issue of AAFP Reporter.

Dr. John P. Salb has cared for Mr. Schroeder, in his role as family physician, for more than 20 years. Just before and during the operation and convalescence, Dr. Salb was a part of the team of surgeons, anesthesists, cardiologists and internists who performed the successful operation. He served as a communication link between surgery and the Schroeder family, keeping them informed and giving a final report after the operation.

An Ounce of Prevention

Suggestion: Be sure to seek consultation in difficult cases.

Discussion:

- Consultation IS NOT admitting defeat.
- Consultation WILL NOT lower your patient's esteem for your abilities.
- Consultation SHOULD NOT be viewed as merely running up a patient's bill.
- Consultation IS good medicine and a prophylaxis for malpractice.

Defense recommendation prepared by the Medical Liability Mutual Insurance Company, New York, N.Y.

New ISMA Members

The following physicians were welcomed in December as new members of the Indiana State Medical Association:

Kamalesh A. Amin, M.D., Indianapolis, diagnostic radiology.

Charles H. Aust, M.D., Indianapolis, pathology.

James P. Bastnagel, M.D., Shelby-ville, anesthesiology.

John L. Beghin, M.D., Indianapolis, orthopedic surgery.

Sally L. Bradley, M.D., Indianapolis, obstetrics and gynecology.

Joshua Careskey, M.D., Indianapolis, pediatric surgery.

Boonmee Chunprapaph, M.D., Munster, orthopedic surgery.

Gregory L. Chupp, M.D., Mishawaka, family practice.

Andrew J. Cogbill, M.D., Indianapolis, anesthesiology.

Michael C. Dalsing, M.D., Indianapolis, general surgery.

Dennis K. Diekos, M.D., Indianapolis, internal medicine.

Russell S. Dilley, M.D., Indianapolis, cardiovascular surgery.

David E. Dollens, M.D., Terre Haute, internal medicine.

Philip S. Gibbs, M.D., Indianapolis, pulmonary diseases.

Michael D. Glant, M.D., Indianapolis, pathology.

Joseph D. Hecht, M.D., Hammond, orthopedic surgery.

Duane A. Hougendobler, M.D., Huntington, pediatrics.

Sylvia T. Kenner, M.D., Indianapolis, anesthesiology.

George H. Kinnebrew Jr., M.D., Terre Haute, diagnostic radiology.

Donald K. Leddy, M.D., Indianapolis, pediatries.

Max R. Mertz, M.D., Muncie, family practice.

John M. Michael, M.D., Indianapolis, ophthalmology.

Chiedu J. Nchekwube, M.D., Indianapolis, family practice.

Gilbert Ortiz, M.D., Rushville, obstetries and gynecology.

Guy F. Perry Jr., M.D., Indianapolis, internal medicine.

Cass A. Pinkerton, M.D., Indianapolis, cardiovascular diseases.

Robert L. Prosser Jr., M.D., Indianapolis, emergency medicine.

Rhys A. Rudolph, M.D., Indianapolis, urological surgery.

Paul Schoon, M.D., Danville, obstetries and gynecology.

Marguerite K. Shepard, M.D., Indianapolis, obstetrics and gynecology.

David L. Sincavage, M.D., Indianapolis, emergency medicine.

Michael L. Smith, M.D., Indianapolis, cardiovascular diseases.

Ray C. Smith III, M.D., Indianapolis, general surgery.

John H. VanDeLeuv, M.D., Indianapolis, emergency medicine.

James W. VanTassel, M.D., Indianapolis, cardiovascular diseases.

Michael C. Venturini, M.D., Indianapolis, cardiovascular diseases.

Phillip L. Whitfield, M.D., Kokomo, family practice.

- Physician Recognition Awards -



The following ISMA physicians are recent recipients of the AMA's Physician Recognition Award. This award is official documentation of Continuing Medical Education hours earned, and is acceptable proof in most states requiring CME in re-registration that the mandatory hours of CME have been accomplished.



Bingle, Glenn, Indianapolis Bloss, Bryant A., Evansville Brewer, Robert A., Logansport Buechler, James R., Terre Haute Burg, Howard E., Evansville Clark, Jack P., Syracuse Cortese, Thomas A., Indianapolis Davis, Donald D., Muncie Doggett, Brian L., Delphi Ferry, Francis A., Indianapolis Fortner, William R., New Albany Fuller, Robert G., Columbus Galante, Gloria, Munster Garner, William S., Indianapolis Gaud, Ramesh S., Rensselaer Goldenberg, Mitchell E., Munster Griffith, Harold R., Fort Wayne Hall, Donald L., Petersburg Hippensteel, Harland V., Auburn

Hudson, Charles P., Evansville Hunter, Harry L., Evansville Jackson, Richard W., Beech Grove Jenson, Robert E., Fort Wayne Johnson, Harold V., Evansville Kashlan, Mouhamed B., Terre Haute Kays, Larry P., Evansville Kocoshis, Thomas A., Muneie Koh, Kang I., Hobart Leon, Mario, Jasper Macri, Paul A., Mishawaka McCann, James P., Wabash McQuiston, Robert D., Indianapolis Poulos, James T., Lafavette Probst, Edward L., Columbus Qazi, Haroon M., Indianapolis Raber, Robert M., Indianapolis Reed, Edsel S., Jeffersonville Reid, James D., Marion

Rice, Katherine K., South Bend Rougraff, Maurice E., Indianapolis Scamahorn, Malcolm O., Pittsboro Sharp, Gary C., Greenfield Sheeler, Garv L., Auburn Sidell, James P., New Haven Silvero, Hubert L., Fort Wayne Sonne, Irvin H., New Albany South, Dale R., Elkhart Spicer, Stephen C., Rensselaer Strate, Bonnie R., Indianapolis Tadatada, Victoriano J., Salem Thong, Siong-Hoat, Fort Wayne VanValer, Constance R., Greenwood Wagner, Richard A., Evansville Wigutow, Marcos, Merrillville Wilhelmus, C. Kenneth, Evansville Wolf, Harry C., Indianapolis Worley, Joseph P., Indianapolis

NEWS NOTES_

Here and There . . .

Recently retired physicians include Dr. Eugene W. Austin of Evansville, Dr. Robert R. Brown of Terre Haute, Dr. James O. Conklin of Terre Haute and Dr. Lloyd E. Rosenbaum of Anderson.

Dr. Patrick J. O'Dea of South Bend addressed the local Stays/Bys Support Group in January; the group consists of patients who have had gastric stapling or intestinal bypass.

Dr. David A. Sorg, president of the Allen County Chapter, American Diabetes Assn., recently addressed the Woodburn Lions Club.

Dr. Edward R. Gabovitch of Indianapolis discussed arthritis at a January meeting of the Arthritis Patient Club.

Dr. L. Craig Miller of Danville discussed communication and preventive medicine during the January meeting of the Danville Business and Professional Women's Club.

Dr. Thomas P. Barhour of Merrillville discussed arthritis during a January public education meeting.

Several hospital elections have been reported:

Dr. Maurice D. Sixbey is the new president of the medical staff, Dukes Memorial Hospital, Peru; Dr. Lloyd L. Hill is vice-president, and Dr. Parker W. Snyder is secretary.

Dr. Dean L. Mattox of LaGrange is the new president of the medical staff, Cameron Memorial Hospital, Angola; Dr. Kenneth A. Bisson is vice-president, and Dr. Ted J. Crisman is secretary-treasurer.

Dr. Keshav Aggarwal is the new president of the medical staff, St. Mary Medical Center, Gary; Dr. John G. Kolettis is president-elect, Dr. Crisostomo Carlos is secretary, and Dr. Shannon K. McCarthy is treasurer.

Dr. Raymond D. Rice has been elected president of Humana Women's Hopsital, Indianapolis; Dr. Nicholas Prochoroff is president elect, and Dr. James R. Cumming is secretary-treasurer.

Dr. Thomas M. Calvin is the new president of the medical staff, La-Porte Hospital; Dr. Kenneth Shively is vice-president, and Dr. Peter R. Skafish is secretary treasurer.

Dr. John B. Kay has been elected chief of the medical staff at Hunting ton Memorial Hospital.

Dr. Jeff H. Towles is the new president of the medical staff at St. Joseph's Hospital, Fort Wayne; Dr. Shashi Ahuja is president elect, and Dr. Ramesh H. Bhat is secretary treasurer.

Dr. Larry D. Lovall has been elected chief of the medical staff at Hendricks County Hospital, Danville.

Dr. Donald V. Elshoff has been named medical director of St. Mary's Medical Center, Evansville.

Dr. James E. Hull has been elected president of the medical staff, St. Elizabeth Hospital, Lafayette; Dr. John C. Scanlon is president-elect, and Dr. J. M. Perez is secretary-treasurer.

Dr. Richard G. Huher of Bedford has received the "volunteer of the year" award of the Lawrence County Mental Health Association.

Dr. Philip N. Eskew of Carmel has been elected secretary of the Great Lakes District, American College of Obstetricians and Gynecologists.

Dr. George R. Small of Greenwood addressed the January meeting of the Indianapolis Support Group for Alzheimer's Disease and Related Disorders.

News from the AMA

· An AMA hudget for the 1985 fiscal year with projected revenues of \$126,430,000 and operating expenses of \$124,580,000 was approved by the House of Delegates at the 1984 interim meeting in Honolulu. The budget calls for committing \$34,790,000 (28%) to representation of the medical profession; \$32,130,000 (25.8%) for providing scientific information; \$12,360,000 for providing soeioeconomic information; \$7,260,000 for maintaining information on physician characteristics in the AMA data base: \$9,800,000 for maintaining edueational standards; and \$7,660,000 for membership activities, medical society relations, and services for medical students and residents. The

balance will be spent on support and administrative costs.

- The major source of AMA revenue in FY 1985 will be membership dues, which are expected to total \$53,650,000. The next largest source of revenue is projected to be \$30,710,000 from advertising. Other sources include investments, \$4,830,000; rental income, \$9,420,000; list house royalties, \$6,250,000; subscriptions, \$4,120,000; book and pamphlet sales, \$5,380,000; accreditation and education programs, \$5,080,000; and other income, \$6,990,000.
- The percentage of foreign medical graduates in U.S. residency training programs has declined steadily since 1980 but still exceeds 25% in some states, according to the AMA's 1984-85 directory of residency training programs.
- Graduate medical students are much more likely to join the AMA as first-year residents if they were AMA members during their final years in medical school, the Board of Trustees reported to the House of Delegates.
- A 10% discount on AMA dues was approved for AMA members who belong to unified societies. It becomes effective for the 1985 membership year.
- The American Group Practice Assn. and the American College of Legal Medicine were granted representation in the AMA House of Delegates at the interim meeting.
- · The AMA's effort to enhance the public image of physicians will be strengthened by a major education campaign. The House of Delegates called for a campaign to increase the public's awareness that physicians are advocates of their patients. The program also will be designed to increase the public's understanding of changes that are occurring in health care delivery and the impact that these changes will have on quality and access. The long-range PR campaign will use consultants with established reputations. The AMA will help state and county societies develop public awareness programs at the local level.

THE SUPER IRA: HOW IT COULD PUT YOU OVER \$100,000 AHEAD.

If you have your IRA money in a fixed-rate CD (or have no IRA at all), you could be missing out on a substantial

opportunity.

For example: Suppose you have an IRA rollover – or a regular IRA to which you contribute \$2,000 a year. And with our help, you improve the return from, say, 9% to 12%. After 25 years, the extra gain would come to \$114,000. If you think that's a worthwhile difference, then it's worth your while to mail in the coupon below.

We call our IRAs "Super" for three main reasons. First, they're investment oriented. So they offer the potential of substantially higher returns.

Second, they're *flexible*. You can change your IRA investment as often as you like.

Third, you can choose from *hundreds* of investments. Including stocks, bonds, limited partnerships, and more.

Which brings up the biggest advantage of all. You don't have to choose your investments alone. Our professional Financial Consultants will help you identify the ones that are right for you – then keep you abreast of new opportunities as they come along.

Call us. Take advantage of the Super IRA advantage. By putting our minds to work with yours.

Shearson Lehman/American Express and The Serious Investor.
Minds Over Money.⁵⁵

WHY!	all: (317) 639-0 Toll Free 1	809 Indiana -800-382-1051	8600038
The New IRAs	101 West Wa	ed, Financial Consulta man/American Expres shington St., Suite 100 Indiana 46204	s, Inc.
	I want to know how	an IRA can work to r free pamphlet, "The	()
NAMI (please print)	Everyone Should Kn		
NAMI (please print) ADDRESS			ar, Simple English."
ADDRESS	Everyone Should Kn	row, Éxplained in Cle	ar, Simple English!" SHEARSON

PHYSICIANS' DIRECTORY

CARDIOLOGY DIAGNOSTIC AND INTERVENTIONAL

WILLIAM K. NASSER, M.D.

MICHAEL L. SMITH, M.D. DENNIS K. DICKOS, M.D.

CASS A. PINKERTON, M.D. JOHN D. SLACK, M.D.

JAMES W. VAN TASSEL, M.D. CHARLES M. ORR, M.D.

JANE HOWARD, M.D.

CARDIOLOGY AND CARDIAC CATHETERIZATION **ECHOCARDIOGRAPHY** EXERCISE STRESS TESTING CORONARY ANGIOPLASTY NUCLEAR CARDIOLOGY PACEMAKER SURVEILLANCE HOLTER MONITORING

ST. VINCENT PROFESSIONAL BUILDING

SUITE 413 8402 HARCOURT ROAD INDIANAPOLIS, INDIANA 46260

PHYSICIAN REFERRAL ONLY TELEPHONE (317) 875-9316 (TOLL-FREE) 800-732-1482 DAY OR NIGHT

PLASTIC SURGERY

ALCOHOLISM TREATMENT

PLASTIC & HAND SURGERY CLINIC, INC.
1944 N. Capitol Ave. Indianapolis 46202

"An office surgery facility"
HAROON M. QAZI, M.D., F.A.C.S.

Diplomate, American Board of Plastic Surgery
Phone: 317-923-4822 317-926-3466

PSYCHIATRY

Davis Psychiatric Clinic, Inc.

1431 North Delaware Street Indianapolis, Indiana 46202 317/634-9930

James R. Davis, M.D. R. Peter Mohlman, M.D. Larry M. Davis, M.D. George McAfee, M.D.

Comprehensive Child, Adolescent, Adult Psychiatry Sexual Therapy, Crisis Intervention Alcohol and Substance Abuse JOHN J. SAALWAECHTER, M.D.
BEN H. PARK, M.D.
RITCHIE COONS, M.D.
DAVID L. PHILLIPS, M.D.
MICHAEL J. CHADWICK, M.D.
DAVID L. GREGORY, M.D.
JAMES R. DAVIS, M.D.
LARRY M. DAVIS, M.D.
Individualized Treatment
for Alcoholism/Drugs

Men - Women - Adolescents



1711 Lafayette Avenue Lebanon, Indiana 46052 (317) 482-3711

2223 Poshard Drive Columbus, Indiana 47202 (812) 376-1711

8925 N. Meridian St. Indianapolis, Indiana 46260 (317) 848-7666

4333 E. Third St. Bloomington, Indiana 47401 (812) 333-3012

428 S. Washington St. Suite 347 Marion, Indiana 46952 (317) 668-7067

OPHTHALMOLOGY

George E. Waters, Jr., M.D.

Diplomate, American Board of Ophthalmology

Diseases and Surgery of the Eye 9100 Meridian Square

50 East 91st Street

Indianapolis, Indiana 46240

317-844-6180

Douglas Bullington, M.D.

Program Director



COUNTERPOINT CENTER

at Valle Vista Hospital 898 E. Main Street Greenwood, IN 46142 317/887-1348

- Free evaluation and intervention
- Adult & Adolescent Treatment Services
- 24 hours-a-day

CARDIOLOGY

INDIANAPOLIS CARDIOLOGY ASSOCIATES, INC.

Robert E. Edmands, M.D. Samuel M. Hazlett III, M.D.

Abdel A. Zeni, M.D.
Don B. Ziperman, M.D., F.A.C.C.

CARDIOLOGY AND CARDIAC CATHETERIZATION
ECHOCARDIOGRAPHY
EXERCISE STRESS TESTING
CORONARY ANGIOPLASTY
PACEMAKER SURVEILLANCE
HOLTER MONITORING

1315 North Arlington Avenue Suite #100 Indianapolis, Indiana 46219 (317) 359-3501

PHYSICIAN REFERRAL ONLY

1500 Albany Street Suite #912 Beech Grove, Indiana 46107 (317) 786-9211

PERIPHERAL VASCULAR SURGERY

AUSTIN L. GARDNER, M. D., F.A.C.S.
MALCOLM B. HERRING, M. D., F.A.C.S.
DANIEL R. LEGRAND, M.D.
DAVID L. MADISON, M.D.

GENERAL VASCULAR SURGERY

8402 HARCOURT ROAD, SUITE 613

INDIANAPOLIS, INDIANA 46260
OFFICE HOURS BY APPOINTMENT
TELEPHONE (317) 872-4129
OR
800 662 5367

COLON AND RECTAL SURGERY

W. M. KENDRICK, M.D. G. A. DONNALLY, M.D. R. JAMES WILSON, M.D. W. E. KELLEY, M.D.

Certified: International Board of Proctology

Practice limited to Colonscopy, Treatment and Surgery of Rectal Diseases

Kendrick Memorial Hospital, Inc. Mooresville, Indiana Tel: 317-831-9300

(JCAH Accredited)

INTERNAL MEDICINE

CLINICAL, ANATOMIC PATHOLOGY

NEPHROLOGY & INTERNAL MEDICINE, INC.

Thomas Wm. Alley, M.D., FACP George W. Applegate, M.D. Charles B. Carter, M.D. William H. Dick, M.D., FACP

Theodore F. Hegeman, M.D. Douglas F. Johnstone, M.D. Wendy L. Kindig, M.D. LeRoy H. King, Jr., M.D., FACP Mary A. Margolis, M.D.

1633 N. Capitol, #722, Indianapolis 46202 Ph: 317-926-0757

By Physician Referral

Answering Service 926-3466

CLINICAL NEPHROLOGY, RENAL TRANSPLANTATION, HEMO-DIALYSIS, PERITONEAL DIALYSIS, HYPERTENSION, FLUID AND ELECTROLYTE IMBALANCE, CRITICAL CARE.

MERIDIAN MEDICAL GROUP, INC.

3130 North Meridian Street P. O. Box 88273 Indianapolis, Indiana 46208 (317) 927-1221

CARDIOLOGY

Richard Miliva, M.D. Richard Miliva, M.D. — PITTLT HUMLA Sign MID Warren El Coggesha Midt PITTLT Dilipan Hill White Vil Midt Richard R. Schumacher, M.D. 317, 1,47 B. T. Maxani, M.D.

GASTROENTEROLOGY

HEMATOLOGY-ONCOLOGY

INFECTIOUS DISEASES

PULMONARY DISEASES

INTERNAL MEDICINE

METABOLISM & **ENDOCRINOLOGY**

NEUROLOGY EEG & EMG LAB



The Medical Laboratory

of Drs. Thornton Haymond Costin-Buehl Bolinger - Warner - McGovern - McClure - Hooker

5940 West Raymond Street, Indianapolis, Indiana 46241 Phone: (317) 248-2448

COMPLETE LABORATORY SERVICES

Serving Indiana Since 1947

- MICROBIOLOGY
- SEROLOGY
- CHEMISTRY
- SURGICAL PATHOLOGY
- HEMATOLOGY
- COAGULATION
- FORENSIC
- CYTOLOGY • FKG
- VETERINARY PATHOLOGY
- TOXICOLOGY
- COURIER SERVICES



CLINICAL AND ANATOMIC PATHOLOGY

Central Testing Facility: 5940 W. Raymond St. For information and details phone 248-2448

RHINOLOGY

By appointment only

317-359-9636

CARL B. SPUTH, M.D.

Diseases & Surgery of Nose & Simuses Nasal Allergy, Rhinomanometry

5506 E. 16th St.

Indianapolis 46218

OTOLOGY

MERIDIAN OTOLOGY LAB

Is Pleased to Announce the Opening of our New Office Providing

*Complete Audiometric Evaluations
*Hearing Aid Evaluations and Dispensing
*Brainstem Auditory Evoked Response
*Visual Evoked Response
*Electronystagmography

Richard Kurtz, M.D. Jack Summerlin, M.D. Kathleen Corbin, M.A., CCC-A Audiologist

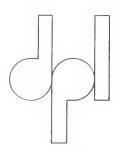
3266 N. Meridian Street Indianapolis, Indiana Suite B12 (317) 925-7077

DERMATOPATHOLOGY

DERMATOPATHOLOGY LABORATORY

Larry J. Buckel, M.D. Robert M. Hurwitz, M.D.

Howard R. Gray, M.D. William B. Moores, M.D.



Diplomates of the American Board of Dermatology and Dermatopathology Specializing in

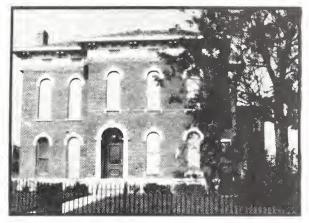
Inflammatory Skin Diseases and Neoplasms of the Skin

9202 North Meridian Street Suite 215 Indianapolis, Ind 46260 (317) 843-2204

Mailers and Courier Service Available

ONCOLOGY—HEMATOLOGY

INDIANA ONCOLOGY-HEMATOLOGY CONSULTANTS



Byram Gates Middleton House, listed on the National Register of Historic Places 1828 North Illinois Street Indianapolis, Indiana 46202

ADULT ONCOLOGY - HEMATOLOGY

Laurence H. Bates, M.D.,

William M. Dugan, Jr., M.D.,

Redmond P. Hogan, III, M.D.,

Gregory W. Smith, M.D.

PEDIATRIC ONCOLOGY — HEMATOLOGY

Deborah S. Provisor, M.D.

Are pleased to announce the association of **NEIL E. IRICK, M.D.**

INTERNAL MEDICINE/HOSPICE CARE

Telephone 317-927-5770 24 hours TOLL FREE: 1-800-ONC-HEME (662-4363)

Attention Indiana Physicians

The *Physicians' Directory* is the most ethical and professional method of announcing specialty practice. It is also the most effective medium for listing office location, office hours, and telephone number for the convenience of colleagues in referring patients.

The title of diplomate of a specialty examining board, a requirement for admission to the *Directory*, offers its assurance of qualifications, whether listed or not.

Family physicians may announce office schedules that are reciprocally staggered in order to provide access to evening and weekend and holiday medical service.

In addition to providing benefits to physicians, the *Directory* is a practical means of providing financial support for INDIANA MEDICINE.

All diplomates of the ISMA are invited to enter a professional card in the *Directory*.

OVER 100,000 PHYSICIANS READ POSTGRADUATE MEDICINE*

Join Them!
Postgraduate
Medicine

*January 1985 Media-Chek











Dx: recurrent herpes labialis

"Herpecin-L Lip Balm is the treatment of choice for peri-oral herpes." GP, New York

"In the management of herpes labialis, Herpecin-L is a conservative approach with low risk / high benefit." Derm., Miami

"Staff and patients find Herpecin-L remarkably **effective**." Derm., New Orleans

OTC. See *P.D.R.* for information. For trade packages to make your own clinical evaluation, write:

CAMPBELL LABORATORIES INC.
P.O. Box 812-M, FDR, NY, NY 10150

Herpeein-L Lip Balon Sig: g.h. Sig: needed

Herpecin-L

CME DOIZ

TO OBTAIN ONE HOUR OF CATEGORY 1 AMA CME CREDIT, answer the following questions by circling the correct answer on the answer sheet below. Complete and clip the application form and mail it to: Indiana University School of Medicine, CME Division, Fesler Hall 221, 1120 South Dr., Indianapolis 46223.

Gastroesophageal Reflux

CONTINUED FROM PAGES 188 192

- 1. The most sensitive test for detecting gastroesophageal reflux is:
 - a. SART
 - b. Endoscopy
 - c. Prolonged pH probe
 - d. Manometry
 - e. Seintisean
- 2. The most specific test is:
 - a. Esophagram
 - b. Bernstein
 - e. Endoscopy
 - d. Manometry
 - e. Prolonged pH probe
- The percentage of symptomatic reflux patients who will ultimately require surgery is:
 - a. 5-15%
 - b. 15.25%
 - c. 25-50%
 - d. 5066%
- 4. Which of the following long-term treatments of gastroesophageal reflux is the

- cheapest, most effective, and safest?
- a. Antacids
- b. Cimetidine
- c. Metoclopramide
- d. Elevation of the head of the bed
- e. Bethanechol
- 5. Which statement about reflux esophagitis is *untrue*?
 - a. Lower esophageal sphincter pressure is not dependent on autonomic innervation.
 - b. Reflux occurs in everyone.
 - c. Reflux esophagitis can only occur if gastric acid is present.
 - d. Symptoms of reflux correlate poorly with endoscopic findings.
- 6. Which of the following diagnostic tests actually detects reflux?
 - a. Manometry
 - b. Bernstein test
 - c. Reflux scintiscan
 - d. Endoscopy

- 7. Which of the following is the most important cause of gastroesophageal reflux?
 - a. An incompetent lower esophageal sphincter
 - b. Obesity
 - c. Hiatal hernia
 - d. Inadequate gastric emptying
 - e. Increased intra abdominal pressure
- 8. Which of the following diagnostic tests is absolutely essential to make the diagnosis of reflux esophagitis?
 - a. Endoscopy
 - b. Manometry
 - e. None
 - d. pH probe
 - e. Scintiscan
- 9. Which of the following foods should be avoided by all symptomatic refluxers?
 - a. Citrus fruits and juices
 - b. Large fatty meals
 - c. Spicy foods
 - d. Carbonated beverages
- 10. Which of the following is *not* a possible complication of reflux esophagitis?
 - a. Stricture
 - b. Asthma
 - c. Bleeding esophageal varices
 - d. Intractable vomiting
 - e. Cancer of the esophagus

FEBRUARY CME QUIZ Answers

Following are the answers to the CME quiz that appeared in the February 1985 issue: "Chronic Diverticular Disease of the Colon," by John L. Glover, M.D.

- 1. b 6. b 2. a 7. c 3. a 8. d 4. c 9. d
- Answer sheet for Quiz: (Gastroesophageal Reflux)

 1. a b c d e
 6. a b c d

 2. a b c d e
 7. a b c d e

 3. a b c d
 8. a b c d e

1. a b c d e 9. a b c d 5. a b c d 10. a b c d e

I wish to apply for one hour of category 1 AMA Continuing Medical Education credit through the I.U. School of Medicine. I have read the article and answered the quiz on the answer sheet above. I understand that my answer sheet will be graded confidentially, at no cost to me, and that notification of my successful completion of the quiz (80% of the questions answered correctly) will be directed to me for my application for the Physician's Recognition Award of the American Medical Association. I also under stand that if I do not answer 80% of the questions correctly, I will not be advised of my score but the answers will be published in the next issue of Indiana Medicine.

Name (please print or type)

Address

10. a

Identification number (found and a jour name or mailing label)

Signature

To be eligible for this month's quiz, send your completed, signed application before April 10, 1985 to the address appearing at the top of this page.

THE INDIANA STATE MEDICAL ASSOCIATION

OFFICERS

President Lawrence L Allen, Anderson Pres-elect Paul Siebenmorgen, Terre Haute Immed Past Pres George I Tukemever, Indpls Executive Director - Donald F. Foy, Indpls. Freasurer George II Rawls, Indpls Asst Ireas Max Wesemann, Franklin Speaker Shirley I Khalout, Marion Vice Speaker - Fred W. Dahling, New Haven

EXECUTIVE COMMITTEE

*Lawrence I Allen, Anderson Paul Siebenmorgen, Terre Haute George I Tukemeyer, Indpls George H. Rawls, Indpls Max Wesemann, Franklin Shirley I Khalouf, Marion Fred W. Dahling, New Haven John D. MacDougall, Beech Grove Davis W. Ellis, Rushville Mark M. Bevers, Seymour

TRUSTEES (Terms end in October) District

- 1-1: DeVerre Gourieux, I-vansville (1986)
- Ralph W. Stewart, Vincennes (1987)
- Richard G. Huber, Bedford (1985)
- 4 Mark M. Bevers, Seymour (1986)
- Benny Ko, Terre Haute (1987)
- 6—Davis W. Ellis, Rushville (1985)
- *7-tohn D. MacDougall, Beech Crove (1986)
- 7—Wilham H. Beeson, Indianapolis (1987)
- 8-William C. VanNess II, Summitville (1987)
- 9-Max N. Hoffman, Covington (1985)
- 10-Charles D. Egnatz, Schererville (1986)
- 11-Edward I Langston, Flora (1987)
- 12-Michael O. Mellinger, LaGrange (1985)
- 13-John W. Luce, Michigan City (1986)
- *Chairman

ALTERNATI TRUSELES (Terms end in October)

- 1-Wallace M. Adye, Evansville (1985)
- 2-Paul J. Wenzler, Bloomington (1986)
- 3-Thomas A. Neathamer, Jeffersonville (1986)
- 4-William E. Cooper, Columbus (1985)
- 5-1 red I. Haggerty, Greencastle (1985)
- 6 Clarence G. Clarkson, Richmond (1986)
- 7 Donna f Meade, Indianapolis (1985)
- 7—Garry I Bolinger, Indianapolis (1985)
- 8 Douglas A. Triplett, Muncie (1985)
- 9 R. Adrian Lanning, Noblesville (1986) 10-Walfred A. Nelson, Gary (1985)
- 11- Jack W. Higgins, Kokomo (1986)
- 12-Thomas A. Felger, Fort Wayne (1986)
- 13-Steven M. Yoder, Goshen (1985)

AMA DELEGATES (Terms end Dec. 31)

Marvin E. Priddy, 1 ort Wayne (1985) Peter R. Petrich, Attica (1985) Thomas C. Lyrrell, Hammond (1985) Everett E. Bickers, FLoyds Knobs (1986) Malcolm O. Scamahorn, Pittsboro (1986) Calbert M. Wilhelmus, Evansville (1986)

AMA ALL. DELEGATES (Terms end Dec. 31)

Martin 1. O'Neill, Valparaiso (1985) Vacant (1985) Vincent 1 Santare, Munster (1985). Alvin 1 Haley, Carmel (1986) John A. Knote, Lafavette (1986) Robert M. Seibel, Nashville (1986)

DISTRICT OFFICERS AND MEETINGS

- 1 Pres: Donald R. I-lder, I-vansville Secv: Gary L. Beck, I-vansville Annual Meeting, May 16, 1985, I vansville
- 2—Pres: William D. Cutshall, Bloomington Secv: Dwight 1 Staiffer, Bloomington Annual Meeting: August 1985, Bloomington
- 3-Pres: Wallace Johnson, Bedford Secy: Richard G. Huber, Bedford Annual Meeting: May 10-12, 1985, Mitchell
- 4-Pres: William F. Cooper, Columbus Secy: Kenneth D. Schneider, Columbus Annual Meeting: May 8, 1985, Columbus
- 5-Pres: Michael S. McCrea, Terre Haute Secy: Peggy Sankey Swaim, Rockville Annual Meeting: Sept. 1985, Brazil
- 6-Pres: Dean Felker, Greenfield Secy: Douglas Morrell, Rushville Annual Meeting; Sept. 12, 1985, Rushville
- 7—Pres: Donald f. Kerner, Indianapolis Secy: Marshall II Truster, Indianapolis Annual Meeting: 1985, Indianapolis 8—Pres: Charles W. Bartholome, Muncie
- Secy: Stephen R. Miller, Muncie Annual Meeting: June 5, 1985, Muncie
- 9-Pres: James Balvich, Monticello Secy: David A. Shapiro, Monticello Annual Meeting: June 12, 1985, Monticello
- 10-Pres: Robert L. Bills, Merrillville Secy: Barron M. Palmer, Hammond Annual Meeting: 1985
- 11-Pres: Michael A. Shirley, Kokomo Secy: Fred Poehler, Eaf-ontaine Annual Meeting: Sept. 18, 1985, Kokomo
- 12-Pres. Antonio B. Donesa, Fort Wayne Secy: Mark S. Souder, Auburn Annual Meeting: Sept. 19, 1985, Fort Wayne
- 13-Pres: Ben Ticsay, Michigan City Secy: Michael Thomas, Elkhart Annual Meeting: Sept. 11, 1985, Michigan City

COMMISSION CHAIRMEN

Constitution & Bylaws Hoyd L. Hill, Peru

Legislation Edward L. Langston, Flora

Physician Impairment

Earry M. Davis, Indianapolis

Public Relations

R. Adrian Lanning, Noblesville

Medical Services

Michael O. Mellinger, LaCitange

Convention Arrangements

James L. Grainger, South Bend

Medical Education

Franklin A. Bryan, Fort Wayne

Sports Medicine

Gary Prah, Lalayette

Ronald G. Blankenbaker, Indianapolis

COMMITTLE CHAIRMEN

Negotiations

John A. Knote, Latavette

Medical Education Fund

John W. Beeler, Indianapolis

Grievance G. Beach Gattman, I Ikhart

Luture Planning

W.C. Van Ness II, Alexandria

Medico-Legal

John W. Beeler, Indianapolis

Indiana Medical Foundation

Frank B. Ramsey, Indianapolis Reduce Drunk Driving

Michael DuBois, Indianapolis

SECTION OFFICERS

MILLRGY

Chinn.

ALLERGY
Chinn.
Seey:
ANI STHESIOLOGY
Chinn Steven R. Young, Carmel
Seey: Donald I. Weninger, Michigan City.
CLEANLOUS MI DICINI
Chinn: Alan Gilbert, Fort Wayne
Seey: Donald Smith, South Bend
DIRI CLORS OLMI DICAL EDUCATION
Chinn: Glenn D. Baird, Evansville
Seey: Homas P. Duntee, South Bend
EMERGENCY MI DICINE
Chinn: John C. Johnson, Crown Point
Seey: Clark Mec lure, Valparaiso
LAMILY PRACTICE
Chinn: Bernard L. Emkes, Indianapolis
Seey: William C. Spence, Knightstown
INTERNAL MEDICINE
Chinn: Dennis F. Stone, Columbus
Seey: Robert L. Rudesill, Indianapolis
MEDICAL DIRI CTORS & STAFF PHYSICIANS
OF NURSING FACILITIES
Chinn: Hugh K. Thatcher, Indianapolis
Seey: Ivan T. Lindgren, Aurora
NEUROLOGY
Chinn: Charles A. Bonsett, Indianapolis (Pro-Tic Chmn: Charles A. Bonsett, Indianapolis (Pro-Tem)

NEUROLOGICAL SURGERY Chmn: Daniel I Cooper, Indianapolis Secy: Marvin R. Bernard, Merrillville

NUCLEAR MEDICINE Chmn:

Aslam R. Siddiqui, Indianapolis

OBSTI-TRICS & GYNECOLOGY
Chmn: J. Robert Stanley, Muncie
Secy: William E. Graham, Fort Wayne

Secy: William E. Graham, Fort Wayne OPHTHALMOLOGY Chmn: Forrest Ellis, Indianapolis Secy: Gerald Keener, Indianapolis ORTHOPAEDIC SURGERY Chmn: Ben Woodward, Evansville Secy: Wade Rademacher, Beech Grove OTOLARYNGOLOGY, HEAD & NECK SURGERY.

Chmn: William E. Cooper, Columbus Secy: Richard T. Miyamoto, Indianapolis PATHOLOGY & FORENSIC MEDICINE Chmn: Calvin N. Steussy, New Castle Secy: Arthur C. Jay, Lebanon

PEDIATRICS

Chmr: Michael A. Hogan, Indianapolis Secy: Kenneth C. Castor, Fort Wayne PREVENTIVE MEDICINE & PUBLIC HEALTH Chmn: Joseph D. Richardson, Rochester Seey: Francis B. Warrick, Richmond

PSYCHIATRY Chmn: Philip Al. Coons, Indianapolis Secy: Cherryl G. Friedman, Noblesville RADIOLOGY

Chmn: Robert W. Holden, Plainfield Seey: Richard I. Pitman, Columbus SURGERY

Chmn: John D. Pulemi, Evansville Secy: Ted W. Grisell, Indianapolis UROLOGY Chmn:

ISMA KEY STAFF PERSONNEL

Donald Foy-Executive Director Vacant-Asst Exec Director Michael Huntley-Special Assistant Richard King-Attorney Ronald Dver-Attorney

Bob Sullivan-P.R., Insurance John Wilson-Accountant

Howard Grindstaff-Field Services Sara Klein-Field Services

Mary Alice Cary-Executive Asst., House of Delegates

Rosanna Her-Membership, Auxiliary Beckett Shady-King-CML, Travel,

Commissions and Committees, House of Delegates

Commissions

CONSTITUTION AND BYLAWS

- Ray Buenikel, Evansville
- Frederick H. Bucht, Evansville
- Donald Kerr, Bedford
- Ronald L. Myers, Lawrenceburg
- William Strecker, Terre Hante
- James Swonder, Richmond
- Helen Czenkusch, Indianapolis
- E. Drew Carrel, Anderson
- 9 Gilbert Gutwein, Lafavette
- 10 Frank Sturdevant, Valparaiso
- 11 * Lloyd Hill, Peru
- 12 Fred Dahling, New Haven
- Steven Yoder, Syracuse
- AL Richard Schaphorst, Mishawaka

CONVENTION ARRANGEMENTS

- Albert Ritz, Evansville
- Steven Lewallen, Bloomington
- Donald D. Donner, Bedford
- John Hossler, Madison
- James F. Swaim, Rockville
- 7- Leo J. McCarthy, Indianapolis
- Bernard J. Emkes, Indianapolis
- Arthur Jay, Parker
- 9- Barbara Bourland, Lafayette
- 10 Nicholas Polite, Whiting
- Jack Higgins, Kokomo
- 12- John Wallace, Fort Wayne
- 13 * James Grainger, South Bend
- AL-Stanley Chernish, Indianapolis
- AL Garry Bolinger, Indianapolis
- AL-Franklin Bryan, Fort Wayne

- 1 Bryant Bloss, Evansville
- John Pless, Indianapolis
- William M. Scott, Scottsburg
- Alan R. Kohlhaas, Lawrenceburg Enrico I. Garcia, Terre Haute
- 6- Wylie McGlothlin, New Castle
- Eugene G. Roach, Beech Grove
- Jack Walker, Muncie
- Ben H. Park, Lebanon
- 10 -Mitchell E. Goldenberg, Munster
- 11 * Edward Langston, Flora
- 12- Fred Dahling, New Haven
- 13- David Clayton, South Bend
- AL-Rex Wieland, North Manchester
- AL-Paul Wenzler, Bloomington

MEDICAL SERVICES

Dist.

- 1- L. Ray Stewart, Evansville
- Thomas M. Turner, Vincennes Wallace Johnson, Bedford
- 4- Gerald T. Bowen, Lawrencehurg 5- Ludimere Lenyo, Terre Haute
- 6- Ordonio Reyers, Rushville
- 7- Ponna Meade, Indianapolis
- 7- William H. Beeson, Westfield
- 8- John Tharp, Muncie
- 10- Creighton Rawlings, Munster
- 11 Joseph B. Davis, Marion 12 * Michael Mellinger, LaGrange
- 13- Alfred C. Cox, South Bend
- AL-Dwight Schuster, Indianapolis
- AL-II. Marshall Trusler, Indianapolis

*INDICATES CHAIRMAN

MEDICAL EDUCATION

- W. Thomas Spain, Evansville
- Alan Stewart, Vincennes
- Olegario Ignacio, Jeffersonville
- Elton Heaton, Madison
- James T. Deppe, Terre Hante James Lewis, Richmond
- Stephen Jay, Indianapolis
- Glenn Bingle, Indianapolis
- R. Kelly Chambers, Anderson
- Stephen D. Tharp, Frankfort
- 10 Alexander A. Stemer, Munster
- Shokri Radpour, Kokomo 1.1
- 12 * Franklin A. Bryan, Fort Wayne
- 13 Donald Olson, South Bend
- AL-Eugene Gillum, Portland
- AL James E. Carter, Indianapolis

SUB-COMMISSION ON ACCREDITATION

ISMA Section on Anesthesia

Barry Glazer, Zionsville

Association of Indiana Directors of Medical Ed

Alan F. Smith, Jr., Bedford

ISMA Section on Cutaneous Medicine

Robert M. Hurwitz, Indianapolis

Indiana Academy of Family Physicians *Eugene Gillum, Portland

Indiana Hospital Association

Glenn Bingle, Indianapolis ISMA Section on Internal Medicine

Stanley Chernish, Indianapolis ISMA Section on OBGYN

John Stanley, Muneie ISMA Section on Ophthalmology

Elizabeth Sowa, Evansville Indiana Orthopaedic Society

Wade Rademacher, Beech Grove ISMA Section on Otolaryngology,

Head & Neek Surgery C. William Johnson, Indianapolis

ISMA Section on Pathology

F. Donald McGovern, Indianapolis ISMA Section on Pediatrics

Helen Czenkusch, Speedway ISMA Section on Psychiatry Alan D. Schmetzer, Indianapolis

Indiana Roentgen Society Heun Yune, Indianapolis

ISMA Section on Surgery Arnold W. Kunkler, Terre Haute

ISMA Section on Urology James Lingeman, Indianapolis

PHYSICIAN IMPAIRMENT

- 1 Douglas Offutt, Evansville
- Donald Snider, Vincennes
- Cesar Archangel, Jeffersonville 1 -
- George Alcorn, Madison Joseph Selliken, Terre Haute
- Clarence G. Clarkson, Richmond
- Tom Lunsford, Indianapolis
- Thomas Moran, Indianapolis
- Thomas Brown, Muneie 9 -
- Phillip Rothrock, Lafayette 10 - Felix Millan, Munster
- 11 Laurence K. Musselman, Marion
- 12- Herbert P. Trier, Fort Wayne
- 13 Bryce Rohrer, Walkerton AL-Harold Nichols, Indianapolis
- AL-Fred Blix, Indianapolis AL* Larry Davis, Indianapolis

PUBLIC RELATIONS

Dist.

- Elizabeth Sowa, Evansville James Beek, Washington Gordon L. Gutmann, Jeffersonville
- William E. Cooper, Columbus
- Werner Loewenstein, Terre Haute
- Freeman Martin, Indianapolis
- Randolph W. Lievertz, Indianapolis Jack Walker, Muncie
- 8- Jack Walker, Muncie 9 * R. Adrian Lanning, Noblesville
- 10- Lawrence A. DeRenne, Dyer
- 11 Richard Glendening, Logansport Edward Stumpf, New Haven
- 13- Donald W. Smith, South Bend
- AL Ross Egger, Daleville
- AL-John Oshorne, Muncie
- AL Logan Dunlap, South Bend

SPORTS MEDICINE

Dist.

- Edward Brundick, Evansville James A. Dennis, Vincennes
- Michael Best, New Albany
- Larry Olson, Columbus
- Robert Burkle, Terre Haute Alois E. Gibson, Richmond
- William H. Beeson, Westfield
- Frank Wilson, Indianapolis
- Douglas Triplett, Muncie
- George Underwood, Lafayette 10- Ronald Pavelka, Munster
- John W. Kennedy, Marion Evan Thompson, Topeka
- Leslie Bodnar, South Bend AL* Gary Prah, Lafayette
- AL Bill Ferguson, Lafayette AL Hugh Williams, Indianapolis

PROFESSIONAL & TECHNICAL ADVISORY

SUBCOMMISSION ON SPORTS MEDICINE James H. Gosman, Indianapolis Philip N. Eskew, Carmel

David Cook, Indianapolis

James Cumming, Indianapolis

George Rapp, Indianapolis

Henry Feuer, Indianapolis Tom Brady, Indianapolis

Donald Shelbourne, Indianapolis Alan Habansky, Muncie

Larry Rink, Bloomington

Donald Wilson, Indianapolis John McCarroll, Indianapolis

Arthur Rettig, Indianapolis

Polly Nicety, Indianapolis Robert Stephens, Indianapolis

Bryant Bloss, Evansville Randall C. Morgan, Jr., Gary Richard B. Juergens, Fort Wayne

INDIANA MEDICAL FOUNDATION, INC.

*Frank B. Ramsey, Indianapolis

Herbert C. Khalouf, Marion

George T. Lukemeyer, Indianapolis Paul Siebenmorgen, Terre Haute

John A. Knote, Lafavette

Douglas H. White, Indianapolis Michael O. Mcllinger, LaGrange

Committees

FUTURE PLANNING

*William Van Ness, H. Alexandria Ralph Stewart, Vincennes John A. Knote, Lafayette Martin J. O'Neill, Valparaiso George T. Lukemeyer, Indianapolis John Beeler, Indianapolis Alvin Haley, Carmel

GRIEVANCE

*G. Beach Gattman, Elkhart Anthony Pizzo, Bloomington Richard B. Schnute, Indianapolis Gilbert M. Wilhelmus, Evansville

MEDICAL EDUCATION FUND

*John Beeler, Indianapolis
Martin J. O'Neill, Valparaiso
Joseph B. Davis, Marion
Charles VanTassel, Jr., Indianapolis Everett Bickers, Floyds Knobs Nicholas Polite, Hammond Walter Daly, Indianapolis (ex officio) Donald Foy, Indianapolis (ex officio)

MEDICO-LEGAL

*John W. Beeler, Indianapolis Paul Siebenmorgen, Terre Haute J. William Wright, Indianapolis John MacDougall, Beech Grove Lawrence E. Allen, Anderson

NEGOTIATIONS

*John A. Knote, Lafayette Vincent J. Santare, Munster Donald S. Chamberlain, Mishawaka Michael O. Mellinger, LaGrange Alvin J. Haley, Carmel John A. Bizal, Evansville Harold Manifold, Bloomington Everett Bickers, Floyds Knobs

REDUCE DRUNK DRIVING

*Michael DuBois, Indianapolis Richard Huber, Bedford Larry M. Davis, Indianapolis Davis W. Ellis, Rushville Gordon Hughes, Indianapolis James P. McCann, Wabash Larry G. Thompson, South Bend Jack Walker, Muncie

GERIATRICS (Ad Hoc)

*Bill Martz, Brownsburg Robert Scibel, Nashville A. Alan Fischer, Indianapolis Malcolm O. Scamahorn, Pittsboro Ben Park, Lebanon Daniel J. Combs, Vincennes

MALPRACTICE ADVISORY (Ad Hoc)

*J. William Wright, Jr., Indianapolis Martin J. O'Neill, Valparaiso Gilbert M. Wilhelmus, Evansville Paul J. Wenzler, Bloomington Eugene Senseny, Fort Wayne Charles D. Egnatz, Schererville Lawrence E. Allen, Anderson

STUDENT REPRESENTATION (Ad Hoc)

*William Beeson, Jr., Westfield Herbert C. Khalouf, Marion Peter R. Petrich, Attica Lloyd L. Hill, Peru Gordon Hughes, Indianapolis (Medical Student)

IMPAC BOARD OF DIRECTORS

Gilbert Wilhelmus, Evansville Mrs. Bruce Romick, Evansville

Everett Bickers, Floyds Knobs

Mrs. B. J. Seligman, Bedford

Mark Bevers, Seymour Mrs. Richard Pitman, Columbus

Fred Haggerty, Greencastle

Mrs. William Strecker, Terre Haute

Davis Ellis, Rushville

Mrs. Joseph Moheban, Shelbyville

Robert Parr, Indianapolis

Mrs. John Pantzer, Indianapolis

Mrs. Dwight Schuster, Indianapolis

Richard Reedy, Yorktown

Mrs. John Stanley, Muncie

Max Hoffman, Covington Mrs William Miller, Lafayette

Vincent Santare, Munster

Mrs. Charles Egnatz, Munster

Thomas Scherschel, Kokomo Mrs. G. Michael Ball, Marion

James Rausch, Fort Wayne

Mrs. Marvin Priddy, Fort Wayne Richard Schaphorst, Mishawaka

Mrs. Donald Chamberlain, Mishawaka

Auxiliary Mrs. Everett Bickers

INTERSECTION COUNCIL Lawrence E. Allen, President

ALLERGY

Paul D. Isenberg, Indianapolis ANESTHESIOLOGY Stephen Dierdorf, Indianapolis CUTANEOUS MEDICINE Larry J. Buckel, Beech Grove DIRECTORS OF MEDICAL EDUCATION Glenn D. Baird, Evansville EMERGENCY MEDICINE John C. Johnson, Crown Point FAMILY PRACTICE Robert W. Mouser, Indianapolis INTERNAL MEDICINE Ramon Dunkin, Indianapolis MEDICAL DIRECTORS AND STAFF PHYSICIANS OF NURSING FACILITIES
Hugh K. Thatcher, Indianapolis NEUROLOGICAL SURGERY Daniel F. Cooper, Indianapolis NEUROLOGY Charles A. Bonsett, Indianapolis NUCLEAR MEDICINE Glenn B. Mather, Bloomington J. Robert Stanley, Muncie OPHTHALMOLOGY Forrest Ellis, Indianapolis ORTHOPEDIC SURGERY Ben Woodward, Evansville OTOLARYNGOLOGY, HEAD AND NECK SURGERY J. William Wright, III, Indianapolis PATHOLOGY AND FORENSIC MEDICINE Calvin N. Steussy, New Castle PEDIATRICS Michael A. Hogan, Indianapolis PREVENTIVE MEDICINE AND PUBLIC HEALTH Joseph D. Richardson, Rochester PSYCHIATRY Philip M. Goons, Indianapolis RADIOLOGY Patrick Dolan, Indianapolis

County Medical Society Directory

John E. Done De July

Secretary
HVIng Soo T. Lee, 227 S. Second Sc., Decatur 46733
William R. Clark Jr., 2828 Fairfield Ave., Fort Wayne 46807
Mr. Larry L. Pickering, Exec. V.P., 2414 E. State Blvd., Fort Wayne 46805
Jack R. Scherer, Tipton Fark Plaza 360 A. Plaza Dr., Columbus 47201

SURGERY

UROLOGY

Ted Grissell, Indianapolis

Neale A. Moosey, Indianapolis

Manley K. Scheurich, R.R. I, Oxford 17971 Mary J. Krotts, 504 W. Camp St., Lebanon 46052 Robert Seese, 101 W. North St., Delphi 46923 Robert Seese, 101 Worth St., Pelphi 1923 Raben A. Calisto, co Box 897, Logansport 16947 Arlene Arnold, 1220 Missonri Ave., Jeitersonville 47430 Rabin Farid, Box 108, brazil 47834 Charles U. Bush. 1201 Oak S., Frankfort 16041 Horice Norton, 325 Knollwood, Washington 47504

County Medical Society Directory

		•	
County IN	4 mi4	Dani (Juni)	V on ton
	trict	President	Secretary Ol (2001
Dearborn Ohio	-1	Jose G. Ibanez, Lawrenceburg	Gordon S. Fessler, 205 Grant St., Aurora, Ohio 47001
Decatur D. W. D.	4	John P. Vincent, Greensburg	Ricardo C. Domingo, Domingo Bldg., Greensburg 47240
– DeKalb – Delaware Blackfor	12 a v	Mark S. Souder, Auburn	Harland V. Hippensteel, 208 W. 7th St., Auburn 46706
Dubois		Joe I. Willman, Muncie	Donna Wilkens, 3905 N. Wheeling, Muncie 47304
	3	Marlin R. Gray, Ferdinand	939 Memorial Drive, P.O. Box 723, Jasper 47546
Elkhart	13	George A. Mark, Elkhart	N.S. Lankford, 105 N. Nappanee St., Elkhart 46514
Fayette Franklin	6	Theodore Hirsch, Connersville	Kateel N. Pai, 308 Mary Kay Lane, Connersville 47734
Floyd	3	James Y. McCullough Jr., New Albany	Daniel II. Cannon, 1201 E. Spring St., New Albany 47150
Fountain-Warren	9	Theodore C. Person, Veedersburg	Atec 8, Salvo, 403 N. Monroe, Williamsport 47993
Fulton	13	Jamie G. Ramos, Rochester	Steven Musselman, 105 W. Rochester St., Akron 46910
Gibson	1	M. S. Krishna, Princeton	Joyce Carpenter, Gibson General Hospital, Princeton 17670
Grant	11	G. M. Ball, Marion	Edward A. Buhr, 801 W. Gardner Dr., Marion 46952
Greene	2	Jose M. Lardizabal, Bloomfield	Harry Rotman, 111 E. Main St., Box 185, Jasonville 47438
Hamilton	9	Walter P. Beaver, Noblesville	Dennis L. Pippenger, 497 Westfield Rd., Noblesville 46060
Hancock	- 6 1 - 2	Gary S. Stouder, Greenfield	David C. Snyder, 1454 N. State St., Greenfield 46140
Harrison Crawfore		Bruce E. Burton, Corydon	David J. Dukes, 245 Hospital Drive, Corydon 47112
Hendricks	7	Michael L. Neely, Danville	David M. Hadley, P.O. Box 344, Plainfield, 46168
Henry	6	Nancy W. Griffith, New Castle	Donald E. Vivian, R.R. 4, Box 6, New Castle 47362
Howard	11	Phil O. Burgan, Kokomo	Jerome F. Doss, 3415 S. LaFountain, Kokomo 46901
Huntington	11	Reeve B. Peare, Huntington	Anil Rao, 1060 Etna Ave., Huntington 46750
Jackson	1	Joel L. McGill, Brownstown	George R. Weir, 200 S. Walnut, Seymour 47274
Jasper	9	Robert C. Kaye, Rensselaer	Robert E. Darnaby, 1103 E. Grace St., Rensselaer 47978
Jay	8	Brendan II. Smith, Geneva	Lily A. Ly, 1309 N. Meridian St., Ste. B, Portland 47371
Jefferson-Switzerl		Leon G. Michl, Madison	Edward P. Eberth, P.O. Box 351, Madison 47250
	-1		
Jennings	-1		John B. Schuck, Doctors' Park #2, 311 Henry St., North Vernon 47265
Johnson	7	Steven A. Weber, Franklin	Craig A. Moorman, 1101 W. Jefferson St., #C, Franklin 46131
Knox	2	Charles Hedde, Vincennes	Michael J. Kelly, 706 S. 15th St., Vincennes 47591
Kosciusko	13	Steven P. Grossnickle, Warsaw	Bruce P. Grossnickle, 2251 DuBois Dr., Warsaw 46580
LaGrange	12	John A. Egli, Topeka	Millard R. Taylor, Box 188, Howe 46746
Lake	10	Barron M. Palmer, Hammond	George J. Volan, 500 W. Lincoln Way 30, Merrillville 46410
			Dan R. Mill, Exec. Dir., 1205 W. Lincoln Hwy., #7-A, Merrillville 46410
LaPorte	13	John H. Phillips, Michigan City	Richard J. Houck, 360 Dunes Plaza, Michigan City 46360
			Wade Kanney, Exec. Sec. P.O. Box 574, LaPorte 46350
Lawrence	3	David P. Schneider, Bedford	James M. Jacobi, 2900 W. 16th St., Bedford 46421
Madison	8	William J. Kopp, Anderson	Diane Van Ness, R.R. #4, Box 352A, Alexandria 46001
Marion	7	John L. Glover, Indianapolis	Richard B. Schnute, 1100 W. Michigan, Emerson 421, Indianapolis 46223
			Mr. Harold W. Hefner, Exec. Dir., 211 N. Delaware St., Indianapolis 46204
Marshall	13	James N. Hampton, Argos	Byron Holm, 1305 N. Center, Plymouth 46563
Miami	11	Lloyd L. Hill, Peru	Agnes Kenny, P.O. Box 578, Bunker Hill 46970
Montgomery	9	Maleolm K. Baird, Crawfordsville	Tony L. Yeiter, Culver Union Hospital, Crawfordsville 47933
Morgan	7	Randall A. Lee, Martinsville	Joyce Branham, 2209 John R. Wooden Dr., Martinsville 46151
Newton	9	Marcelino F. Guzman, Morocco	Arthur Schoonveld, 420 E. Main St., Brook 47922
Noble	12	James D. Chandler, Avilla	Carl F. Stallman, 409 E. Wayne, Kendallville 46755
Orange	3	Charles X. McCalla, Paoli	Philip T. Hodgin, 420 N. Maple, Orleans 47432
Owen-Monroe	2	William D. Cutshall, Bloomington	Marcus N. Rogers, Ind. Univ., 1403-1628, Student Health Sves, Bloomington
			47405
			Arlene Rhea, Exec. Dir., 1920 E. Third St., Bloomington 47401
Parke-Vermillion	5		J. Franklin Swaim, P.O. Box 185, Rockville 17872
Perry	1	Robert Gilbert, Tell City	Robert A. Ward, Professional Bldg., Tell City 47856
Pike	1	Donald L. Hall, Petersburg	
Porter	10	Surjit S. Patheja, Valparaiso	Kenneth W. Blumenthal, 3110 Willowcreek Rd., Portage 46383
Posey	1	John R. Crist, Mt. Vernon	Herman Hirseh, 130 W. 5th St., Mt. Vernon 47620
Pulaski	13	William R. Thompson, Winamae	Che Lu Tseng, 620 E. 13th St., Winamae 46996
Putnam	5	Roger S. Roof, Greencastle	Robert A. Heavin, R.R. 2, Box 347 JV, Coatesville 46121
Randolph	8	Susan K. Pyle, Union City	C. R. Miranda, 702 Browne St., Winchester 47394
Ripley	4	Manuel G. Garcia, Batesville	A. E. Jaojoco, Margaret Mary Hospital, Batesville 47006
Rush	6	Harry G. McKee, Rushville	Douglas Morrell, 606 E. 11th St., Rushville 46173
St. Joseph	13	James L. Grainger, South Bend	Edward L. Heyde, 513 N. Michigan St., South Bend 46601
c.t. ocpii		ounce at crumger, and the country	Mrs. Rose Vance, Exec. Dir., 2015 Western Ave., South Bend 46629
Scott	3	Marvin L. McClain, Scottsburg	Wm. M. Scott, Medical Arts Bldg., Highway 31 North, Scottsburg 47170
Shelby	6	Joseph Moheban, Shelbyville	David C. Esarey, P.O. Box 370, Shelbyville 46176
Spencer	1	John C. Glackman Jr., Rockport	Michael O. Monar, 6th & Main, Rockport 47635
Starke	13	Atiman N. Damodaran, Knox	Walter Fritz, 1520 S. Heaton St., Knox 46534
Steuben	12	Keith R. Baker, Angola	Chi M. Pham, 401 S. Broad St., Fremont 46737
Sullivan	2	Irvin H. Seott, Sullivan	Joseph E. Dukes, P.O. Box 278, Dugger, 47848
Tippecanoe	9	Paul T. Maier, Lafayette	Paula Meluch, c/o 2110 Underwood St., Lafayette 47904
Tipton	9	Albert E, Stouder, Jr., Tipton	Michael E. Harper, RR4, Box 375, Tipton 46072
Vanderburgh	1	Robert R. Penkaya, Evansville	Mrs. Carolyn Scruggs, Exec. Dir., 421 N. Main St., Evansville 47711
Vanderburgh	5	Robert J. Burkle, Terre Haute	Douglas E. Claybrook, 221 S. Sixth St., Terre Haute 47801
. 150		where a parke, refre trade	William L. Purcell, Exec. Dir., P.O. Box 986, Terre Haute 47801
Wabash	11	L. Michael Silvers, N. Manchester	James P. McCann, 1025 Manchester Ave., Wabash 46992
Warrick	1	Syed A. Ali, Boonville	Kishor R. Bhatt, 1116 Millis Ave., Boonville 47601
Washington	3	Mark E. Manship, Salem	Ann L. Anderson, 1000 N. Shelby St., Salem 47167
Wayne-Union	6	Joseph J. Zore, Richmond	John R. Dehner, c/o 1401 Chester Blvd., Richmond 47374
Wells	12	George K. Babcock, Bluffton	James E. Umphrey, 303 S. Main St., Bluffton 46714
White	9	James Balvich, Monticello	David A. Shapiro, 1017 O'Connor Blyd., #D, Monticello 47960
			Claude J. Heritier, 700 Hill Dr., Columbia 46725
Whitley	12	John L. Vogel, Columbia City	Viaure J. Herrier, 700 mill 191. Columbia 40720

COMMERCIAL ANNOUNCEMENTS_

OFFICE SPACE AVAILABLE: Greenwood Professional Park. Excellent accomodations in an established medical complex. Attractive. Well landscaped setting. Plenty of convenient parking. Complete laboratory and radiological services on premises. Centrally located in the fastest growing area of Indiana. Two miles from new University Heights Hospital. Ideal location for the individual practitioner or as an additional location for group practices. For additional information please call (317) 881-3565.

REAL ESTATE RENTALS—2-bedroom, 2 bath, luxury condo, ocean view at Monarch, Sea Pines, Hilton Head. Available June 8 through June 15, \$800. (317) 844-6122.

INDIANA CITY with serving area of 125,000 needs physician to staff free-standing urgent care center. Compensation \$75,000 plus bonuses and partnership arrangement. Structured hours and coverage. Contact Lynn Stefanutti, Spring Creek Road, Rt. #2, Box 61, Barrington Hills, Illinois 60010 – (312) 358-1437 or (312) 382-1298.

FOR SALE: Country estate. 2-story Southern Colonial. 6 Bedrooms, 23x28 family room, dining room, music room, 18x20 kitchen, finished basement, 3 fireplaces, 4½ baths, available with up to 20 acres and barns. Ideal location in southeast Marion County, 12 minutes from St. Francis, Community, University Heights and downtown Indianapolis, 3 miles from I-65. (317) 786-2286, 9 a.m., to 5 p.m.

FAMILY PHYSICIAN to join existing group practice in north central Michigan resort community. Affiliation with 90-bed acute care hospital with attached 40-bed long-term care facility. Tourist population of 40,000. Start-up offers salary guarantees, office space, staff, liability insurance and relocation allowance. Submit resume to MediSearch, a division of Emergency Consultants, Inc., 2240 South Airport Road, Traverse City, MI 49684.

FAMILY PRACTICE PHYSICIAN—NEAR CENTRAL INDIANA-ILLINOIS BORDER—Small community small group good coverage—replaced retired doctor, so instant patient load. Modern general hospital—trauma center—modern clinic nearby—board certified or eligible, guarantee plus productivity. Safe, friendly community, variety fine housing, recreation opportunities are unid. Contact Carl Genrich, (312) 537-6640.

STAFF PHYSICIAN POSITION AVAILABLE Indiana State University Student Health Center. Excellent facility including laboratory, x ray, pharmacy Serving 11,000 students. License to practice in State of Indiana and interest in health promotion and sports medicine are required. A continuing 10-month annual position to begin August 15, 1985. Applications received after April 1, 1985, may not be given consideration. Forward letter of interest and resume to Dr. Richard A. Melloh, Administration Building, Indiana State University. Terre Haute, IN 47809. Indiana State University is an Equal Opportunity Affirmative Action Employer.

AN EXCELLENT OPPORTUNITY for an OB/GYN to join a strong group practice in a beautiful lakefront city in eastern Wisconsin. Enjoy an outstanding quality of life within an easy commute to major metropolitan areas. Reply in confidence to Director of Physician Recruitment, Recruitment Consultants, 400 Renaissance Center, Suite 500, Detroit, Mich. 48243—(313) 259-2000.

ORTHOPEDIC SURGEON - An excellent opportunity is available for two orthopedic surgeons to join a progressive medical group in central Minnesota. The community serves a population base of 225,000 individuals and is an excellent base for an orthopedic surgeon. St. Cloud, Minn., is the hub of the state and is home to three major colleges. It is geographically located to provide quick access to the Metropolitan-Twin Cities area. The St. Cloud community has a 500-bed hospital with all the latest medical and technological advancements to assist the practicing orthopedic surgeon. If interested in this excellent opportunity, please call collect either Dr. LaRue Dahlquist, President, or Daryl Mathews, Administrator, at (612) 251-8181, and/or send curriculum vitae to St. Cloud Medical Group, 1301 W. St. Germain St., St. Cloud, Minn. 56301.

GENERAL/FAMILY PRACTITIONER, B.C., for multi-specialty clinic in northwest Indiana. Suite lease or opportunity to participate in partnership with lab and x-ray and new building for depreciation. Contact Thomas Covey, M.D., Manager, (219) 462-4167.

GENERAL INTERNIST, B.C., for multi-specialty clinic in northwest Indiana. Suite lease or opportunity to participate in partnership with lab and x-ray and new building for depreciation. Contact Thomas J. Covey, M.D., Manager, (219) 462-4167.

PSYCHIATRIST — Psychiatric services department of general hospital offers part-time contract hours to Board eligible psychiatrists at satellite offices located in Frankfort and Tipton, Indiana. Qualified candidates may contact Steven W. Adrianse, Director of Personnel Services, or Dr. Robert Adams, M.D., 3500 S. LaFountain, Kokomo, Ind. 46902—(317) 453-8465. EOE M/F/H

HAWAII CONDO at Warlea on Maui. Two bedrooms, two full baths. Beaches, pools, tennis. Enjoy special golf fees and times on 2 courses. For rent by owner. Call toll free 1-800-367-2950.

OB/GYN, B.C., for multi-specialty clinic in northwest Indiana. Suite lease or opportunity to participate in partnership with lab and x-ray and new building for depreciation. Contact Thomas Covey, M.D., Manager, (219) 462-4167.

INDIANA, north of Indianapolis: Immediate full-time opportunity available in newly renovated emergency department. Hourly salary, flexible scheduling, malpractice insurance provided. Locum tenens opportunities also available. For more information, call 1-800-253-1795, or in Michigan 1-800-632-3496; or send CV to Emergency Consultants, Inc., 2240 South Airport Road, Suite 101, Traverse City, MI 49684.

FAMILY PRACTICE—Rapidly expanding staff model HMO in Madison, Wisconsin, has opportunities for additional family practice physicians. Competitive salary with excellent benefits and attractive practice setting. GHC is an established, rapidly growing HMO serving 29,000 patients. Current staff totals 180 employees, including 20 physicians. Contact: John Mueller, Group Health Cooperative, 1 South Park St., Madison, Wisconsin 53715=(608) 251-4156.

EMERGENCY MEDICINE Position Available: Opportunity for experienced Emergency Physician to join professional group practicing in northwestern Indiana. Contact Dr. Daniel Philipsborn at (312) 248-5557.

ADOLESCENT PSYCHIATRIST: Excellent opportunity for board certified/eligible adolescent psychiatrist to establish practice in suburban Indianapolis. Rotate referral coverage for 120-bed psychiatric hospital. For information, write or call Alan Mittermaier, Administrator, CPC Valle Vista Hospital, Box 304, Greenwood, Ind. 46142 (317) 887-1348.

GENERAL/FAMILY PRACTITIONERS – If you are looking for an opportunity to be in the forefront of medical care, practice preventive medicine, work with other innovative professionals, and earn a comfortable living in pleasant surroundings, send your curriculum vitae to Physician Placement Dept-25. An equal opportunity employer. CIGNA Healthplans of California, 700 N. Brand Blvd., Ste 500, Glendale, CA 91203.

PHYSICIAN WANTED—Established convenient care facility in midwestern community. Experience in Family Practice or Emergency Medicine. Competitive salary and benefits. Flexible schedule. Reply to INDM, Box 1631, Marion, IN 46952.

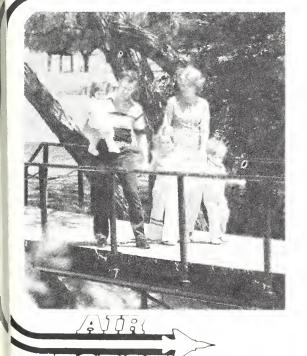
ANESTHESIOLOGIST, BE, available for locum tenens work. Licensed in Indiana and Michigan. Contact W. T. Kirsten, M.D., P. O. Box 542, Lapeer, Michigan 48446—(313) 667-9309.

EMERGENCY MEDICINE Position Available: Opportunity for experienced Emergency Physician to join professional group practicing in Hobart and Gary, Indiana. Contact Dr. Cornelius Arnold at (312) 747-7115.

MEDICAL DIRECTOR – Immediate opening for full-time Medical Director of a developing community mental health center west of Indianapolis; special-ty in psychiatry, Board-eligible, preferably Board-certified, post-residency experience required. Contact John L. Clodfelter, Ph.D., Director, Outpatient Services, Cummins Mental Health Center, P.O. Box 158, Danville, Ind. 46122–(317) 745-5419.

RENT LUXURIOUS FLORIDA condominium Hutchinson Island. Two bedroom, two bath. Golf, tennis, pool, private beach. Call Tom Stayton, (317) 636-4535.

MEDICAL DIRECTOR Opportunity for physician with experience in medical group practice ad ministration to join established HMO in Madison, Wisconsin. Group Health serves 29,000 patients with its staff of 20 physicians and total staff of 180 Excellent salary and benefit program. This represents a rewarding opportunity to develop or progress your career in medical administration. Contact: John Mueller, Group Health Cooperative, 1 South Park St., Madison, Wiscon sin 53715 (608) 251 4156.



HEALTH CARE AT ITS BEST: AIR FORCE MEDICINE

Air Force medicine is one of our best benefits, and, with your help, we'll keep it that way. The Air Force needs physicians such as you to become members of our health care team.

Most administrative responsibilities are in the hands of others, giving our physicians the time to give their full attention to the patients' needs. Our hospitals are staffed with dedicated, competent professionals.

You'll find you will have time for your family, and to keep abreast of the latest methods and technologies that you don't have time for now. We also offer unlimited professional development and financial security.

If you're considering a change, consider Air Force medicine. To find out more about Air Force medicine, contact your nearest Air Force recruiter. Experience health care at its best.

Capt. Scott Simpson or TSgt. Steve Beecher 317-269-6164 or 6354 collect

Indiana Eye Associates

COMPLETE MEDICAL, DIAGNOSTIC & SURGICAL OPHTHALMIC SERVICES

- Eve Examinations
- Consultations
- Surgery: Cataract, Implant, Glaucoma, Laser, Pediatric, Plastic, Retinal, Corneal and Refractive
- Contact Lenses: Hard, Soft, Gas Permeable
 & Extended Wear
- Visual Fields
- Ocular & Endothelial Photography
- Ultrasonography

Physicians:

David L. Alvis, M.D.
Peter H. Cahn, M.D.
George A. Clark, M.D.
Parvin D. Gillim, M.D.

Jack L. Kane, M.D.
John E. Mitchelson, M.D.
Francis W. Price Jr., M.D.
George E. Waters Jr., M.D.

Indiana Eye Associates P.C. 9100 Meridian Square 50 East 91st Street (at North Meridian)

Indianapolis, IN 46240 Phone: (317) 848-1348

Membership Roster

The 1985-86 edition of the Indiana State Medical Association Membership Roster will be available in April. The roster will be mailed automatically to all ISMA members.

Additional copies of the roster will be sold for \$30 each, payable in advance. Checks should be payable to the Indiana State Medical Association.

For more information or to order copies, write to the ISMA Membership Department, Attn: Rosanna Iler, 3935 N. Meridian St., Indianapolis, Ind. 46208.

ADVERTISERS INDEX

March 1985 Vol. 78	No. 3
Advanced Information Systems	217
American Physicians Life	202
Brown Pharmaceutical Co., Inc.	181
Campbell Laboratories, Inc.	242
Central Pharmaceuticals, Inc.	201
Commercial Announcements	248, 249
Computer Terminal Service	171
Eastman Kodak Company	175-177
Eli Lilly and Company	215
Hook Drugs	193
Indiana Eye Associates	250
Indiana Medical Bureau	197
Lincoln National Life	209
Marion Laboratories, Inc.	203, 204
Medical Protective Company	223
Peoples Bank	179
Peoples Drug	169
Physicians' Directory	236-241
Physicians Insurance Co. of Indiana	Cover
Postgraduate Medicine	242
Roche Laboratories	Covers
Shearson/American Express	187, 235
Squibb and Sons, Inc.	183-186
St. Mary of Nazareth Hospital Cent	er205
St. Paul Fire & Marine Insurance .	230
Stuart Pharmaceuticals	. 173, 174
Upjohn Company	221
U.S. Air Force	
Winthrop-Breon	. 227, 228

In accepting advertising for publication, INDIANA MEDICINE has exercised reasonable precaution to insure that only reputable, factual advertisements are included. However, we do not have facilities to make comprehensive or complete investigation, and the claims made by advertisers in behalf of goods, services and medicinal preparations, apparatus or physical appliances are to be regarded as those of the advertisers only. Neither sanction nor endorsement of such is warranted, stated or implied by the association.

COMPLETE LABORATORY DOCUMENTATION¹⁻⁵... EXTENSIVE CLINICAL PROOF



FOR THE PREDICTABILITY CONFIRMED BY EXPERIENCE

DALMANE® flurazepam HCI/Roche

THE COMPLETE HYPNOTIC PROVIDES ALL THESE BENEFITS:

- Rapid sleep onset¹⁻⁶
- More total sleep time 1.0
- Undiminished efficacy for at least 28 consecutive nights²⁻⁴
- Patients usually awake rested and refreshed^{7,0}
- Avoids causing early awakenings or rebound insomnia after discontinuation of therapy^{2,5,10-12}

Caution patients about driving, operating hazardous machinery or drinking alcohol during therapy. Limit dose to 15 mg in elderly or debilitated patients. Contraindicated during pregnancy.

DALMANE® flurazepam HCI/Roche

References: 1. Kales J et al: Clin Pharmacol Ther 12 691-697, Jul-Aug 1971. 2. Kales A et al: Clin Pharmacol Ther 18 356-363, Sep 1975. 3. Kales A et al: Clin Pharmacol Ther 19 576-583, May 1976. 4. Kales A et al: Clin Pharmacol Ther 32:781-788, Dec 1982. 5. Frost JD Jr, DeLucchi MR. J Am Genatr Soc 27:541-546, Dec 1979. 6. Kales A, Kales JD: J Clin Pharmacol 3:140-150, Apr 1983. 7. Greenblatt DJ, Allen MD, Shader RI: Clin Pharmacol Ther 21:355-361, Mar 1977. 8. Zimmerman AM. Curr Ther Res 13:18-22, Jan 1971. 9. Amrein R et al: Drugs Exp. Clin Res 9(1):85-99, 1983. 10. Monit JM. Methods Find Exp. Clin Pharmacol 3:303-326, May 1981. 11. Greenblatt DJ et al: Sleep 5(Suppl 1):S18-S27, 1982. 12. Kales A et al: Pharmacology 26:121-137, 1983.

DALMANE® ® flurazepam HCl/Roche

Before prescribing, please consult complete product information, a summary of which follows:

Indications: Effective in all types of insomnia characterized by difficulty in falling asleep, frequent nocturnal awakenings and/or early morning awakening, in patients with recurring insomnia or poor sleeping habits, in acute or chronic medical situations requiring restful sleep. Objective sleep laboratory data have shown effectiveness for at least 28 consecutive nights of administration. Since insomnia is often transient and intermittent, prolonged administration is generally not necessary or recommended. Repeated therapy should only be undertaken with appropriate patient evaluation.

evaluation.

Contraindications: Known hypersensitivity to flurazepam HCI, pregnancy Benzodiazepines may cause
fetal damage when administered during pregnancy.
Several studies suggest an increased risk of congenital malformations associated with benzodiazepine use
during the first trimester. Warn patients of the potential
risks to the fetus should the possibility of becoming
pregnant exist while receiving flurazepam. Instruct
patient to discontinue drug prior to becoming pregnant. Consider the possibility of pregnancy prior to
instituting therapy.

instituting therapy

Warnings: Caution patients about possible combined effects with alcohol and other CNS depressants. An additive effect may occur if alcohol is consumed the day following use for nighttime sedation. This potential may exist for several days following discontinuation. Caution against hazardous occupations requiring complete mental alertness (e.g., operating machinery, driving). Potential impairment of performance of such activities may occur the day following ingestion. Not recommended for use in persons under 15 years of age. Though physical and psychological dependence have not been reported on recommended doses, abrupt discontinuation should be avoided with gradual tapering of dosage for those patients on medication for a prolonged period of time. Use caution in administering to addiction-prone individuals or those who might increase dosage.

Precautions: In elderly and debilitated patients, it is recommended that the dosage be limited to 15 mg to reduce risk of oversedation, dizziness, confusion and/or ataxia. Consider potential additive effects with other hypnotics or CNS depressants. Employ usual precautions in severely depressed patients, or in those with latent depression or suicidal tendencies, or in those with impaired renal or hepatic function.

Adverse Reactions: Dizziness, drowsiness, lightheadedness, staggering, ataxia and falling have occurred, particularly in elderly or debilitated patients. Severe sedation, lethargy, disorientation and coma, probably indicative of drug intolerance or overdosage, have been reported. Also reported, headache, heartburn, upset stomach, nausea, vomiting, diarrhea, constipation, GI pain, nervousness, talkativeness, apprehension, irritability, weakness, palpitations, chest pains, body and joint pains and GU complaints. There have also been rare occurrences of leukopenia, granulocytopenia, sweating, flushes, difficulty in focusing, blurred vision, burning eyes, faintness, hypotension, shortness of breath, pruritus, skin rash, fry mouth, bitter taste, excessive salivation, anorexia, euphoria, depression, slurred speech, confusion, restlessness, hallucinations, and elevated SGOT, SGPT, total and direct bilirubins, and alkaline phosphatase; and paradoxical reactions, e.g., excitement, stimulation and hyperactivity

Dosage: Individualize for maximum beneficial effect. *Adults:* 30 mg usual dosage, 15 mg may suffice in some patients. *Elderly or debilitated patients:* 15 mg recommended initially until response is determined.

Supplied: Capsules containing 15 mg or 30 mg flurazepam HCl.



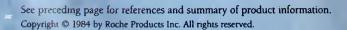
DOCUMENTED IN THE SLEEP LABORATORY 1-5. PROVEN IN THE PATIENT'S HOME





FOR A COMPLETE NIGHT'S SLEEP

DALMANE (V) flurazepam HCl/Roche STANDS APART 15-MG/30-MG CAPSULES



ELECTION CONTRACTOR CO

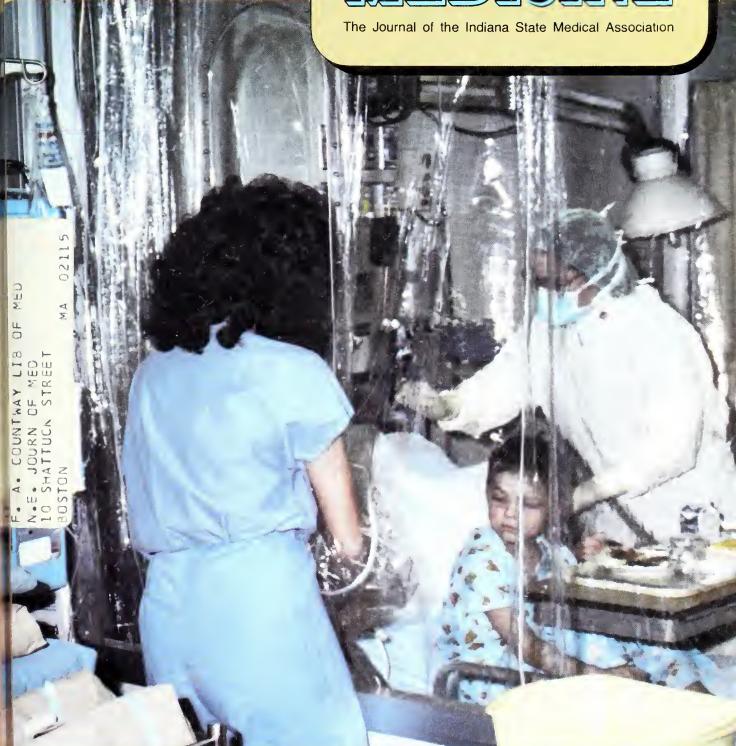
AFR18 LE

APRIL 1985

VOL.78

NO.4

INDIANA MEDICINE





"...Your financial security specialists are on call"

American Physicians Life believes a physician's financial security deserves specialized attention. That's why our products and services are designed with the doctor in mind. Our comprehensive portfolio of services, including life insurance, professional disability income coverage, qualified plans and tax-deferred annuities, is customized to meet your personal financial planning needs as well as those of your professional corporation.

Let American Physicians Life secure your financial planning program—that's our specialty!

For more information contact:

Williams/Townsend Associates 8900 Keystone Crossing, Suite 500 Indianapolis, Indiana 46240 (317) 844-3119

Endorsed by the Indiana State Medical Association



Bates Drive, P.O. Box 281 Pickerington, Ohio 43147 Telephone (614) 864-3900

Toll-free in Ohio, 1-800-282-7515 Toll-free outside Ohio, 1-800-742-1275

AF719 1585

Vol. 78, No. 4 APRIL 1985

WINNER

Sandoz Medical Journalism Award—1976, 1979

SCIENTIFIC ARTICLES	Surgical Management of	DEPARTMENTS, MISCELLANEOUS
CME: Bone Marrow	Hemodialysis Patients 308	Medical Museum Notes25
Transplantation: From Last Resort to Preferred Therapy265	FEATURES	What's New?
	Newsletter of the Indiana	Future File256
CRITICAL CARE MEDICINE: Vascular Access and	Historical Society	Public Health Notes
Nosocomial Infections	In Memoriam:	Drug Names 2325
Otosclerosis: Preventable	Arvine G. Popplewell, M.D. 318	Editorials 335
Cause of Hearing Loss	New Prescribing Rules for	Auxiliary Report
PD CRITICAL CARE:	Home-Use Med Equipment	News Notes
Abdominal Trauma	The EPSDT Program:	New ISMA Members
in Children	A Progress Report	CME Awards
Kissing Balloon Therapy	Medical Practice Management:	CME Quiz 34
for Leriche Syndrome	Coping with Change	Obituaries 348
Morphologic Assessment of Operatively Excised Native Cardiac Valves	Commentary: What's the Matter with Getting Old?329	Membership Roster
False Aneurysm of the Brachial Artery Following Cardiac Catheterization		

USPS 284-440 ISSN 0746-8288

OFFICE OF PUBLICATION: 3935 N. Meridian St., Indianapolis, Ind. 46208 Tel: (317) 925-7545

INDIANA MEDICINE (ISSN 0746-8288) is published monthly by the Indiana State Medical Association. Second-class postage paid at Indianapolis, Ind.

POSTMASTER: Send address changes to INDIANA MEDICINE, 3935 N. Meridian St., Indianapolis, Ind. 46208.

Yearly subscription rates: \$20 domestic, \$22 Canada, \$23 foreign. Library rates: \$18 domestic, \$20 Canada, \$21 foreign. Senior ISMA members and full-time

medical students-\$10. Single copies not available. Subscriptions renewable only in January and July

Views expressed do not necessarily reflect the opinions of the editors. No copyright is claimed, unless specifically indicated. Copyright rests solely with authors, who are responsible for statements made in their articles. Scientific and editorial contributions are accepted for exclusive publication, subject to editorial requirements. Publication deadline: Ist day of month preceding month of issue. Instructions for authors available upon request.

All issues since 1967 are available on microfilm from University Microfilms International, 300 N. Zeeb Rd., Ann Arbor, Mich. 48106. Indexed in Index Medicus and Hospital Literature Index.

Advertising rates and data available upon request.

EDITOR

Frank B. Ramsey, M.D. MANAGING EDITOR Martin T. Badger BUSINESS MANAGER Donald F. Fov CIRCULATION MANAGER Karvl Hancock

EDITORIAL BOARD Elton Heaton, M.D. Nancy C. A. Roeske, M.D. (Terms expire Dec. 31, 1985) Alvin J. Haley, M.D. Alan T. Marty, M.D. (Terms expire Dec. 31, 1986) Thomas J. Conway, M.D. I.E. Michael, M.D. (Terms expire Dec. 31, 1987) Vacant Vacant (Terms expire Dec. 31, 1985)

CONSULTING EDITORS

Steven C. Beering, M.D., Charles A. Bonsett, M.D., A. W. Cavins, M.D., Rodney A. Mannion, M.D., Lall G. Montgomery, M.D., Paul S. Rhoads, M.D., W. D. Snively, M.D., I. W. Wilkens, M.D.



ABOUT THE COVER

Indiana University School of Medicine opened the state's first bone marrow transplantation center in January at Riley Hospital for Children, Indianapolis. Our cover shows a young patient receiving a meal inside one of the laminar air flow rooms, which are designed to prevent bacterial and fungal infections. A complete report on BMT as it is being used to thwart leukemia and other life-threatening blood disorders begins on page 265.—PHOTO BY DAVE JAMES, MEDICAL ILLUSTRATIONS, I.U. MEDICAL CENTER

MUSEUM NOTES

CHARLES A. BONSETT, M.D., Indianapolis

	CE	RT	PIO	AT	E	
Private I	nstruct	ion in .	97		ınd Percu	ssion
1 600	ity, that	17.11.4	111	Jany.	11. 1.	ha
					ste - Jacker	
Auscultate	ra and	· Stereman	-0 10	6, ourse c	ensuling of	
		Twent	у Цеві	SORE		
in the Ist.	no of &	Beiler	-4 comic	il'		
7 hou	Hoch	4.	111 10	6/1	, Jic'i	,

Dr. Long's certificate, signed by Dr. Austin Flint in 1868.

Important Notice for Museum Members

In October, the board of directors of the Indiana Medical History Museum voted to change the legal name of the organization from the Indiana Medical History Society, Inc. to the Indiana Medical History Museum, Inc.

To make this official, the museum's membership must vote on this issue either in person at the annual meeting to be held at 10 a.m., April 20, 1985, at the museum, or by proxy vote. If you are a dues-paying member of the museum and cannot attend the April meeting, please indicate below whether you approve of the name change. Your ballot should be sent by April 20, 1985, to Charles A. Bonsett, M.D., Indiana Medical History Museum, 3000 W. Washington St., Indianapolis, Ind. 46222.

- TES, I approve of changing the name of the organization from Indiana Medical History Society, Inc. to Indiana Medical History Museum, Inc.
- NO, I do not approve of changing the official name of the organization from Indiana Medical History Society, Inc. to Indiana Medical History Museum, Inc.

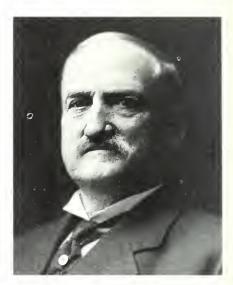
NE OF THE ITEMS at the Medical Museum is a scrapbook containing clippings and items relating to Dr. Robert W. Long, whose gift to the state was the hospital bearing his name; it was the first structure to be erected in the area now designated as the Indiana University Medical Center (dedicated in 1914).

The scrapbook was donated by Dr. Long's niece, Clara O. Carter, in 1974. She was 93 years old at the time. The illustrations on this page and the information about Dr. Long are from that scrapbook.

Dr. Long's father, William, was also a physician (as were three of William's brothers). Dr. William Long came to Indiana from Kentucky, practicing first in Lafayette and then in New Maysville in Putnam County, where he established a permanent residence and where Robert was born Dec. 11, 1843.

Robert attended Franklin College. His education was interrupted by the Civil War, during which he served as a private in the Seventy-Eighth Indiana Infantry. He began his medical education at Rush Medical College (1864-65) and took his M.D. degree from Jefferson Medical College in Philadelphia in 1866. He received an ad eundem degree from the Bellevue Hospital Medical College in 1869.

"After his graduation . . . Dr. (Robert) Long took up the practice of his profession with his father in New Maysville. The father and son had a wide practice in the country about New Maysville. Dr. Long remembers vividly his experiences in those days. There were no gravel roads and in winter the roads were almost impassable. Dr. Long remembers most vividly the desperate cases far in the country which he had sometimes to face alone. In such cases miles away from town or from any other physician, the young practitioner must fight to save a life on his own judgment and responsibility, and was made to realize the importance of every bit of his medical train-



Dr. Robert W. Long

ing, and especially of his clinical instruction under the great masters." (Shown on this page is his certificate from Dr. Austin Flint, "the American Laennec.")

"These experiences brought to Dr. Long years ago two convictions: first, the necessity of first rate clinical facilities and instruction for medical students, and, second, the need of the people throughout the country districts for hospital advantages such as are now (1912) enjoyed only by people living in the cities. . . .

"Dr. Long moved to Irvington in 1875 and later to Indianapolis (office located at Alabama and Washington Streets). . . ."

The scrapbook reveals that Dr. Long became a wealthy individual but not through the practice of medicine. He invested in real estate when values were low and disposed of the land when values were high. His selections were good.

Dr. Long died at the age of 71 years (June 18, 1915) at his home on North Central Avenue in Indianapolis (four different addresses are given, all in the 1100 block, but the correct one is unknown).

Wrong Size?





Knowing exactly what size you need can sometimes be a problem — especially if you're talking about medical office computers. Too often, medical practices end up with a computer that is either too small or too big for their needs. If your decision is based only on price and you buy too small, you soon find that you've outgrown your "new" system, and now need a different one. If you buy too big, you may find that you've spent more than you should have, wasting thousands of dollars. So, where do you turn?

Now, you can get help from the *Professional Medical Consultants* at Advanced Information Systems. At Advanced Information Systems, our only business is working with medical practices that are considering automation. We offer a free Physician Practice Profile to evaluate your office needs. If you don't need a computer system, we'll tell you. But if you do, we have a complete line of medical systems tailored specifically for your practice — regardless of size or speciality. From accounting applications and word processing to an exclusive Medical Records System, Advanced Information Systems creates a Total Practice Management environment for you.

Just because there may be a designer label on a computer does not necessarily mean it will fit you. Get the right computer system for your practice. Call or write today for more information. Advanced Information Systems. We can help.

NAME	<u> </u>
ADDRESS	
CITY	STATE
ZIP	PHONE
	aDIAM (D INFORMATION SYMFAN erstanding your medical practice - 101 • Indianapolis Indiana 46268 • (317) 875-857



ADVANCED INFORMATION SYSTEMS

Understanding your medical practice

9101 Wesleyan Road • Suite 101 • Indianapolis, Indiana 46268 • (317) 875-8577

WHAT'S NEW?

Eastman Kodak has a new line of assayed control fluids manufactured to exact specifications for use in monitoring the precision and accuracy of Kodak Ektachem analyzers. Control fluids need only be run once per shift, and calibration is required only at 90-day intervals.

The Marketing Communications Department of Du Pont announces a personalized computer-based managerial cost accounting system to analyze the effect of DRGs and prospective payment in radiology units. "Financial Management Analyses'85" is based on 15 years' experience of more than 2,000 hospitals and group radiology practices. It is available exclusively from Du Pont to its x-ray film customers.

Abbott Laboratories announces a new device for the preparation of intravenous nutritional solutions. It saves material and capital equipment costs in hospital pharmacies. Nutrimix consists of a dual-chambered plastic I.V. container filled with Aminosyn (crystalline amino acid solution) in the 500 ml upper chamber and dextrose solution in the 1000 ml lower chamber. The device is made of the company's exclusive CR-3 film, which produces a clear, flexible plastic container. Amino acids and dextrose nutritional solutions previously had to be packaged only in glass to preserve stability. Nutrimix is activated by opening a clamp between the chambers, so the amino acids will empty into the dextrose solution. It is a closed system. Nutrimix can eliminate a number of time-consuming preparation steps for each unit of solution prepared in the pharmacy.

Amko offers a new cannula for introducing liquids through the cervix for purpose of insufflation, x-ray and hydro-tubation. The Amko ratchet self-retaining trigger cannula has a positive tension ratchet and flexible Teflon tip. It is lightweight for easy handling. To assure leak-proof testing, the adjustable black Teflon acorn has an extra washer.

3M has introduced a new splinting system made with strong, moldable Scotchcast 2 casting tape. It consists of multiple layers of Scotchcast 2 casting tape covered with air- and water-permeable plastic, and a piece of adhesive foam padding for patient comfort. The splint is supplied in a foil pack and comes in 3x12-inch, 4x15-inch and 4x30-inch sizes. The permeable plastic allows application without gloves and results in minimal exotherm.

Syn-Optics' state-of-the-art 543 solid state medical video camera system is featured in a new 8-page color brochure. Also illustrated is the company's range of medical camera accessories, monitors and videotape recorders. Marketing is by Stryker Corporation of Kalamazoo, which also distributes the Video Camera brochure.

Hewlett-Packard has a new pediatric lead-wire electrode that has mild adhesive for sensitive skin. The new HP 40428A pediatric electrode complements the existing, more-adhesive HP40426A electrode.

Honeywell has an Application Systems Division which is introducing the TRACTS Tumor Registry for hospitals. The software package helps collect, organize and analyze tumorregistry data. It complies with cancerprogram guidelines established by the American College of Surgeons. TRACTS Tumor Registry improves the quality and accessibility of reported patient information and increases the productivity of tumorregistry departments.

News of what is new in the medical supply industry is composed of abstracts from news releases by book publishers and manufacturers of pharmaceuticals, clinical laboratory supplies, instruments and surgical appliances. Each item is published as news and does not necessarily constitute an endorsement of a product or recommendation for its use by Indiana Medicine or by the Indiana State Medical Association.

Ross Laboratories announces availability of PULMOCARETM Specialized Nutrition for Pulmonary Patients. PULMOCARE is the first high-fat, low-carbohydrate enteral formula designed to reduce production of carbon dioxide. Caloric density is 1.5 calories per milliliter. It is lactose free and carries 100% of the US RDA for vitamins and minerals in 1420 calories (950 ml.). It may be used as a sole source of nutrition or as a supplement for tube-fed patients who are respirator-dependent. It may be tube-fed or taken orally.

Scott Paper announces sanitary, single-use washcloths suitable for use in hospitals, nursing homes, outpatient clinics and other healthcare facilities. WypAll® Healthcare washcloths have clothlike softness, are highly absorbent, and are strong enough to permit use in general housekeeping activities from light wiping to scrubbing. Dimensions are 12.5-in. by 14.4-in, bigger than most textile washcloths. Scott does not mention this but they would be, obviously, a large help around the house.

PILLOW TALK, Inc. has a new type of pad that protects mattresses from stains and odors. Flannelette is laminated onto both sides of a tough vinyl sheet. Cool in summer, warm in winter. Machine washable and is designed with strong anchor bands to hold the pad in place. Comes in baby carriage size, crib, twin, full, queen and king sizes. P-T also has a full line of down pillows and comforters, pillow and comforter protectors and pillow cases.

Abbott Laboratories announces the marketing of IVEX-HP 0.22 micron filter for normal I.V. therapy and an 0.8 micron filter for emergency room use and in surgery where rapid I.V. flow is required. It has been shown that the use of such filters will eliminate a large percentage of cases of infusion phlebitis due to the filter's ability to remove particles as small as 0.22 microns, all bacteria and air from the I.V. line.



DOCTOR'S ORDERS.

Today's medicines are far more potent and far more effective than ever before. Accordingly, they demand far more care and attention to your directions.

That's why we've established a comprehensive system of auxiliary labeling at each of our drug counters. Powerful reminders to your patients of important instructions...warnings about possible misuse...reassurances about side effects. It's one of the ways we work with you to help make your prescriptions and our medicines work better for your patients.

And for your convenience, each Peoples Drug Store has a special unlisted number furnished only to doctors. It's answered only by our pharmacists. If you don't have this number yet, just call your nearest Peoples Drug Store and ask the pharmacist for his special "doctors only" phone number.



FUTURE FILE

PD Respiratory Disease

A "Neonatal and Pediatric Respiratory Disease Conference" will be conducted June 6-9 at the Sheraton-Sand Key Resort Hotel, 1160 Gulf Blvd., Clearwater Beach, Fla.

For the program and details, contact Myrtle E. Larson, R.N., Gulf Coast Lung Assn., 6160 Central Ave., St. Petersburg, Fla. 33707 – (813) 347-6133.

Adolescent Suicide

"Adolescent Suicide: Treatment and Prevention" is the subject of a workshop to be conducted by the Suicide Prevention Center of Montgomery County, (Dayton, Ohio) at Stouffer's Dayton Plaza Hotel on April 25. The fee for the program is \$40 if paid before April 12, \$55 if paid after that date and \$65 if paid at the door.

Pamela Cantor, Ph.D., nationally recognized expert on the topic of adolescent suicide, will be the guest speaker. Register by calling (513) 223-9096. The seminar is designed to offer basic information for the layperson and professional alike.

Sports Medicine Congress

Program plans for the Sports Medicine 1985 Congress/Exposition are now complete. The theme of the Congress, which will meet in the Indianapolis Convention Center and the Hoosier Dome, is "The Impact of Injury on Sport and Exercise."

Such topics as The State of the Art of the Knee, Head Injuries in Boxing, Alcohol and Drug Abuse in Sports, and Pre-participation Physical Examinations will be presented.

The Congress meets Aug. 6-10. AMA Category 1 credit is 15 hours; ACSM credit is also 15 hours.

For complete information contact the Sports Medicine Congress, P.O. Box 55095, Madison, Wisc. 53705— (608) 231-3480.

For copies of the scientific program, write to Sports Medicine Congress, 7034 W. North Ave., Chicago 60635.

Indiana University CME

For the Primary Care Physician

April 17 – Arthritis for the Primary Care Physician, Indianapolis.

May 15-Diagnosis and Management of Cardiac Arrhythmias, Indianapolis.

May 16-Pharmacological Management of Cardiovascular Disease, Richmond.

May 21-23 — Family Practice Update, Part I, Indianapolis.

May 22-I.U. School of Medicine Alumni Day.

June 1 – Diabetes Update, Indianapolis.

June 5—Richter Child Psychiatry Conference, Indianapolis.

June 5—Treatment of Hematologic Malignancies, Indianapolis.

July 23-25 — Family Practice Update, Part II, Indianapolis.

"Mini-Fellowship in Rheumatology"-offered by Rheumatology Div., Dept. of Medicine, I.U. School of Medicine. For general internists, family physicians and general practitioners. 40-hour instructional program at the I.U. Medical Center; 5 consecutive days, or other suitable arrangements. Program should help participant attain skills for effective office management of common rheumatologic problems, interpretation of relevant laboratory tests and techniques for joint aspiration and local soft tissue injection. Includes experience with the "team approach" to management of the arthritic patient in the community. Call K. Brandt, M.D., Rheumatology Division -(317)264-4225.

For the Specialist

May 8-10 — Thoracic Imaging 1985, Indianapolis.

May 29 - Neonatal Perinatal Medicine, Merrillville.

The Journal of the American Medical Association publishes a list of CME courses for the United States twice yearly. The January listing features courses offered from March through August; the July listing features courses offered from September through February.

Business Management

Carolina Management Institute is offering a series of "Executive and Professional Business Management Seminars" to be held at Hilton Head Island's Sea Pines Plantation throughout the spring and fall seasons. The four-day seminars are directed to the executive, professional and entrepreneur. Treasury regulations permit tax deductions for educational expenses. The seminars continue until June 7 and resume in the fall, August 26 through October 26.

Write or phone the Institute at 105 Wappoo Creek Executive Park, Charleston, S.C. 29412 – (803) 762-1111 or 1-800-542-5428.

Methodist Hospital CME

April 19-20: Second Annual Oculoplastics Course, Methodist Hospital of Indiana.

April 20: Practical Topics in the Care of the Elderly, Methodist Hospital of Indiana.

May 1: Thyroid Update 1985, Medical Tower Inn.

May 7-8: 11th Annual William Niles Wishard Lecture; guest speaker – E. Darracott Vaughan Jr., M.D., Cornell.

May 9-10: 20th Annual Gordon W. and Mae Batman Lecture; guest speaker – Marvin Tile, M.D., Toronto.

For more information, contact Dixie Mattingly, CME coordinator, Graduate Medical Center, Methodist Hospital of Indiana – (317) 929-3733.

Mock Trial Seminar

The Medical Education Dept. of Winona Memorial Hospital is co-sponsoring a mock trial seminar April 18 from 8 a.m. to 4 p.m. at the Beef and Boards Dinner Theater, Indianapolis.

The afternoon session of the mock trial, titled "I've Been Sued!?" will have the Honorable Charles W. Applegate presiding. Attorneys from Indianapolis law firms will represent the defendant and plaintiff.

The price is \$65 for physicians, \$30 for medical students. Contact Karon Crowe at (317) 927-2284.

CONTINUED ON PAGE 258

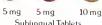
Angina comes in many forms...



So does SORBITRATE OSORBIDE DINITRATE)

Unsurpassed flexibility in nitrate therapy.





















40 mg 40 mg Sustained Action "Swallow" Tablets

SORBITRAT (ISOSORBIDE DINITRATE)

Please consult full prescribing information before use. A summary follows:

INDICATIONS AND USAGE: SORBITRATE (isosorbide dinitrate) is indicated for the treatment INDICATIONS AND USAGE: SUPBITHATE (isosorpide dinifrate) is indicated for the freatment indipreventier of angira per fors. All disage forms, sitsosorpide dinifrate may be used prophylar lically to decrease frequency and severity of anginal attacks and can be expected to decrease the need for sublingual antroglycerin. The sublingual and chewable forms of the drug are indicated for acute prophylaxis of angina pectoris when taken a few minutes before situations likely to provoke anginal attacks. Because of a slower onset of effect, the oral forms of isosorbide dinifrate are not indicated for acute.

prophyla vs.

CONTRAINDICATIONS: SORBITRATE is contraindicated in patients who have shown purported hypersensitivity or idiosyncrasy to it or other nitrates or nitrites. Epinephinie and related compounds are ineffective in reversing the severe hypotensive events associated with reverdose and are contraindicated in this situation.

WARNINGS: The benefits of SORBITRATE during the early days of an acute myocardial infarction; have not been established. If one elects to use organic nitrates in early infarction, hemodynamic monitoring and frequent clinical assessment should be used because of the potential deleterious effects of hypotension.

PRECALTIONS: General: Severe hypotensions.

proteinal decembracy series or impotension. PRECAUTIONS: General: Severe hypotensive response particularly with upright posture, may occur with even small doses of SORBITRATE. The drug should therefore be used with caution in subjects with may have blood volume depletion from diurelic therapy or in subjects who have low systolic, blood pressure (eg. below 90 mmHg). Paradoxical bradycardia and increased.

low systolis, blood pressure (eg. below 90 mmHg). Paradoxical bradycarda and increased angina pectoris may accompany intrate induced hypotension. Nitrate therapy may aggravate the angina caused by hypertrophic cardiomyopathy. Marked symptomatic orthostatic hypotension has been reported when calcium channel blockers and organic intrates were used in combination. Dose adjustment of either class of agents may be necessary. Tolerance to this drug and cross tolerance to other nitrates and nitrites may occur. Tolerance to the vascular and antianginal effects of isosorbide dinitrate or nitroglycerin has been demonstrated in clinical thats, experience through occupational exposure, and missolated tissue experiments in the aboratory. The importance of tolerance to the appropriate use of systotide dinitrate in the management of patients with angina pectors has not been determined. However, one clinical trial using treadmill exercise tolerance is an end point found determined.

s sortwide dinitrate in the aboratory. The importance of toterance for the appropriate use of determined. However, one clinical trial using freadmill exercise tolerance (as an end point) found an 8 hour duration of action of oralisosorbode dinitrate following the first dose (after a 2 week placebo washout) and only a 2 hour duration of effect of the same dose after 1 week of repetitive dosing at conventional dosing intervals. On the other hand, several frails have been able to differentiate isosorbide dinitrate from placebo after 4 weeks of therapy and, in open trials, an effect seems defectable for as long as several months. Tolerance clearly occurs in industrial workers continuously exposed to nitroglycerin. Moreover physical dependence also occurs since chest pain, acute myocardial infarction, and even sudden death have occurred during femporary withdrawal of nitroglycerin from the workers. In clinical trials in anging patients, there are reports of anginal attacks being more assity provok ed and of rebound in the hemodynamic effects soon after nitrate withdrawal. The relative importance of these observations to the routine, clinical use of isosorbide dinitrate is not known. However, it seems prudent to gradually withdraw patients from isosorbide dinitrate is not known. However, it seems prudent to gradually withdraw patients from isosorbide dinitrate is not known. However, it seems prudent to gradually withdraw patients from isosorbide dinitrate is not known. However, it seems prudent to gradually withdraw patients from isosorbide dinitrate is not known the routine, clinical use of isosorbide dinitrate is not known. However, it seems prudent to gradually withdraw patients from isosorbide dinitrate is not known the routine, clinical use of isosorbide dinitrate is not known. However, it seems prudent to gradually with a few patients from isosorbide dinitrate is not known the routine, clinical use of isosorbide dinitrate is not known the routine, clinical use of isosorbide dinitrate is not known the routine, c

Unig interactions: Alcohol may enhance any marked sensitivity to the hypotensive effect of intrates. Is is obtained dirithate acts directly on vascular smooth muscle, therefore, any other agent that depends on vascular smooth muscle as the final common path, an be expected to have decreased or increased effect depending on the agent. Carcinogenesis, Mutagenesis, Impairment of Fertility: No long term studies in animals base been their himself to evaluate the carciningence potential of this drug. A modified two littler reproduction study in rats fed isosorbide dimitrate at 25 or 100 mg/s gray did not reveal any effect is in fertility, ingestation or any remarkable gross pathology in any parent in offspring fed ion studied dimitrate as compared with rats fed a basal controlled diet.

Pregnancy Category C: Isosorbide dimitrate has been shown from use a dose related increases ment ryrdox city (in rease in iniummitted pups) in rabbits at oral doses 35 and 150 time; the maximum relion mended human daily dose. There are no adequate and well in introlled studies in pregnant women. SORBITRATE should be used during pregnancy only if the potential benefit justilies the potential risk to the fetus.

Nursing Mothers: It is not known whether this drug is excreted in human milk. Because rarry drugs are excreted in human milk. Caution should be even ised when SORBITRATE is administered for a nursing woman.

Pediatric Use: The safety and etter the research of this program is a program.

Pediatric Use: The safety and etter fiveness of SORBITRATE invitudenthals not been that shed.

ADVERSE REACTIONS: Adverse reactions, particularly headache and hypotension, are do achieved in some althals at various doses, the following have been observed. Headache in the misst community reported in indence varies widely apparently being to achieve related in some althals at various doses, the following have been observed. Headache in the misst community profession and persistent. Custaneous vasodiation with flushing may octor. Or Transpert exposeds of technies and wateriess as well as other signs of cerebral isothermal associated with postural hypotension, may octor as onally develop of the incidence of reported symptomatic hypotension ranges from 2% to 36% Archical solonal individual will exhibit marked sensitivity to the typotensione effects of intrates and severe responses traused womiting weakness restless responses traused womiting weakness restless and advertice and collapse may or increven with the usual therapeutic dose. Drug rash and/adject stollative dermatitis may occusionally use or Nausea and vomiting appear to be uncommunic. Case reports of clinically significant methemogliobinemia are rare at conventional to use drongament ratates. The formation of methemogliobin to mation even conventional forces, drongament ratates. The formation of methemogliobin to mation even conventional docare divergence of the mogliobin. For the treatment of argina per for s, the usual starting for each public personal processing the personal processing of the personal pr

seemonstating the other twenes of chronic maintenance therapy with these dosage forms. See not their reported of the property of the seemon of the seemon of the set of the seemon of t



FUTURE FILE

CONTINUED FROM PAGE 256

Technology Assessment

"Medical Technology Assessment for Health Professionals" is the subject of a week-long course in health policy and management that will be offered by the faculty of the Sloan School of Management of MIT. The 1985 MIT summer session, June 17-21, will feature a distinguished visiting faculty.

CME credit is being offered by Tufts University School of Medicine.

Among the topics will be thirdparty payment for medical practices, medical/scientific assessment of emerging technologies, communication among medical technology professionals, and health research and development.

Contact the Director of the Summer Session, Room E19-356, Massachusetts Institute of Technology, Cambridge, Mass. 02139.

Reflux Esophagitis

"Medical and Surgical Review of Reflux Esophagitis and the Angelchik Prosthesis" will be discussed June 14-15 at the Concourse Hotel, Madison, Wisc.

The review is for physicians, including primary care providers. AMA Category 1 credit is 11 hours.

Contact Sarah Z. Aslakson, 465B WARF Bldg., 610 Walnut St., Madison, Wisc. 53705-(608) 263-2856.

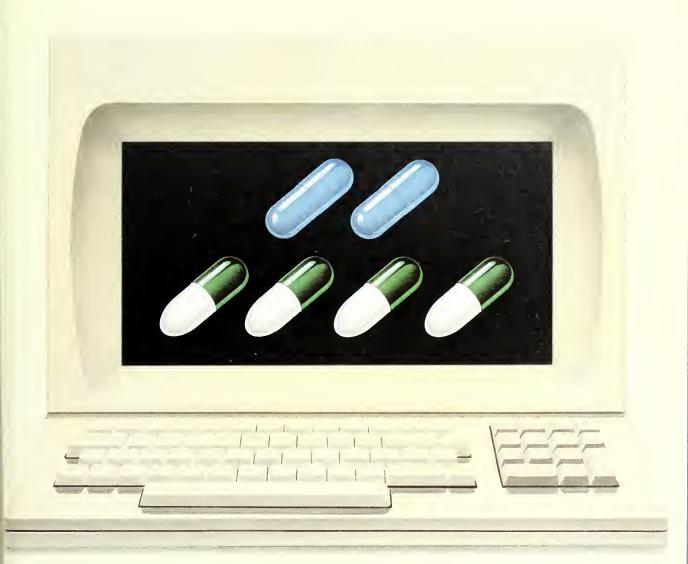
Workshop for Residents

The ISMA and the Resident Medical Society will co-sponsor a workshop April 19 and 20 at St. Francis Hospital, Beech Grove.

Staff from the AMA Dept. of Practice Management will discuss patient relations, accounting systems, personnel management, third-party payors and medical records. ISMA legal counsel will review corporate and malpraetice law requirements in In-

For more information, contact Carol Ann Cunningham at ISMA headquarters, Indianapolis.

When does two equal four?



When you prescribe

VELOSEF Capsules

(Cephradine Capsules USP)

Two capsules of Velosef 500 mg BID can be as effective as 250 mg QID — four capsules — of the leading oral cephalosporin...

decide for yourself!

Velosef provides BID effectiveness in upper and lower respiratory tract infections...in urinary tract infections, including cystitis and prostatitis...in skin/skin structure infections when due to susceptible organisms.

Please see prescribing information that follows.



Have your name entered for a chance to win your own Office Computer Diagnosis Center or other valuable "user-friendly" prizes.

- Five (5) Grand Prizes...OFFICE COMPUTER DIAGNOSIS CENTER...an IBM-PC computer with software that encompasses hundreds of diseases, thousands of symptoms! A \$5,600.00 value!
- Five (5) First Prizes...a briefcase-size Hewlett-Packard Portable Computer valued at \$3,900.00.
- ☐ 500 Second Prizes...a copy of *Computerizing Your Medical Office*:

 A Guide for Physicians and Their Staffs valued at \$17.50

Just complete and return the attached reply card!

OFFICIAL RULES: "Computers in Health Care Drawing"NO PURCHASE NECESSARY.

(1.) On an official entry form handprint your name, address and zip code. You may also enter by handprinting your name, address and zip code and the words "Velosef—Computers in Health Care" on a 3" x 5" piece of paper. Entry forms may not be mechanically reproduced. (2.) Enter as often as you wish, but each entry must be mailed separately to. "COMPUTERS IN HEALTH CARE DRAWING," P.O. Box 3036, Syosset, NY 11775. All entries must be received by September 9, 1985. (3.) Winners will be selected in random drawings from among all entries received by the National Judging Institute, Inc., an independent judging organization whose decisions are final on all matters relating to this sweepstakes. All prizes will be awarded and winners notified by

mail. Only one prize to an individual or household. Prizes are nontransferable and no substitutions or cash equivalents are allowed. Taxes, if any, are the responsibility of the individual winners. No responsibility is assumed for lost, misdirected or late mail. Winners may be asked to execute an affidavit of eligibility and release. (4.) Sweepstakes open only to physicians residing in the U.S.A., except employees and their families of E.R. SQUIBB & SONS, INC., its affiliates, subsidiaries, advertising agencies, and Don Jagoda Associates, Inc. This offer is void wherever prohibited, and subject to all federal, state and local laws (5.) For a list of major prize winners, send a stamped, self-addressed envelope to: "COMPUTERS IN HEALTH CARE" WINNERS LIST, P.O. Box 3154, Syosset, NY 11775.

NDC 0003-0114-50

100 capsules

500 mg

velosef '500'

Cephradine Capsules USP
Usual dosage See insert

VELOSEF® CAPSULES Cephradine Capsules USP VELOSEF® FOR ORAL SUSPENSION Cephradine for Oral Suspension USP

DESCRIPTION: Velosef '250' Capsules and Velosef '500' Capsules (Cephradine Capsules USP) provide 250 mg and 500 mg cephradine, respectively, per capsule. Velosef '125' for Oral Suspension and Velosef '250' for Oral Suspension (Cephradine for Oral Suspension USP) after constitution provide 125 and 250 mg cephradine, respectively, per 5 ml teaspoonful.

INDICATIONS AND USAGE: These preparations are indicated for the treatment of infections caused by susceptible strains of designated microorganisms as follows: Respiratory Tract Infections (e.g., tonsillitis, pharyngitis, and lobar pneumonia) due to *S. pneumoniae* (formerly *D. pneumoniae*) and group A beta-hemolytic streptococci [penicillin is the usual drug of choice in the treatment and prevention of streptococcal infections, including the prophylaxis of rheumatic fever, Velosef (Cephradine, Squibb) is generally effective in the eradication of streptococci from the nasopharynx, substantial data establishing the efficacy of Velosef in the subsequent prevention of rheumatic fever are not available at present]; Otitis Media due to group A beta-hemolytic streptococci, *H. influenzae*, staphylococci, and *S. pneumoniae*; Skin and Skin Structures Infections due to staphylococci and beta-hemolytic streptococci; Urinary Tract Infections, including prostatitis, due to *E. coli*, *P. mirabilis*, *Klebsiella* species, and enterococci (*S. laecalis*).

Note: Culture and susceptibility tests should be initiated prior to and during therapy

CONTRAINDICATIONS: In patients with known hypersensitivity to the cephalosporin group of antibiotics.

WARNINGS: Use cephalosporin derivatives with great caution in penicillinsensitive patients since there is clinical and laboratory evidence of partial cross-allergenicity of the two groups of antibiofics; there are instances of reactions to both drug classes (including anaphylaxis after parenteral use). In persons who have demonstrated some form of allergy, particularly to drugs, use antibiotics, including cephradine, cautiously and only when absolutely necessary

Pseudomembranous colitis has been reported with the use of cephalosporins (and other broad spectrum antibiotics); therefore, it is important to consider its diagnosis in patients who develop diarrhea in association with antibiotic use. Treatment with broad spec-

trum antibiotics alters normal flora of the colon and may permit overgrowth of clostridia. Studies indicate a toxin produced by *Clostridium difficile* is one primary cause of antibiotic-associated colitis. Cholestyramine and colestipol resins have been shown to bind the toxin *in vitio*. Mild cases of colitis may respond to drug discontinuance alone. Manage moderate to severe cases with fluid, electrolyte and protein supplementation as indicated. Oral vancomycin is the treatment of choice for antibiotic-associated pseudomembranous colitis produced by *C. difficile* when the colitis is severe or is not relieved by drug discontinuance, consider other causes of colitis.

PRECAUTIONS: General: Follow patients carefully to detect any side effects or unusual manifestations of drug idiosyncrasy. If a hypersensitivity reaction occurs, discontinue the drug and treat the patient with the usual agents, e.g., pressor amines, antihistamines, or corticosteroids. Administer cephradine with caution in the presence of markedly impaired renal function. In patients with known or suspected renal impairment, make careful clinical observation and appropriate laboratory studies prior to and during therapy as cephradine accumulates in the serum and tissues. See package insert for information on treatment of patients with impaired renal function. Prescribe cephradine with caution in individuals with a history of gastrointestinal disease, particularly colitis. Prolonged use of antibiotics may promote the overgrowth of nonsusceptible organisms. Take appropriate measures should superinfection occur during therapy. Indicated surgical procedures should be performed in conjunction with antibiotic therapy

Information for Patients: Caution diabetic patients that false results may occur with urine glucose tests (see PRECAUTIONS, Drug/Laboralory Test Interactions). Advise the patient to comply with the full course of therapy even if he begins to feel better and to take a missed dose as soon as possible. Tell the patient he may take this medication with food or milk since G I. upset may be a factor in compliance with the dosage regimen. The patient should report current use of any medicines and should be cautioned not to take other medications unless the physician knows and approves of their use (see PRECAUTIONS, Drug Interactions).

Laboratory Tests: In patients with known or suspected renal impairment, it is advisable to monitor renal function.

Drug Interactions: When administered concurrently, the following drugs may interact with cephalosporins:

Ofher antibacterial agents — Bacteriostats may interfere with the bactericidal action of cephalosporins in acute infection; other agents, e.g., aminoglycosides, colistin, polymyxins, vancomycin, may increase the possibility of nephrotoxicity.

Can two really equal four?



Find out today and participate in the VELOSEF' Capsules (Cephradine Capsules USP) "Computers in Health Care Drawing."

Please send me a clinical trial supply of 40 Velosef Capsules
500 mg and enter my name in the "Computers in Health
Care Drawing."

Please type or print clearly.

i lease typ	be or print clearry.		
Name			
Address			
City	State	Zıp	
Signature			MD

☐ I do not wish to receive a trial supply of Velosef Capsules at this time, but please enter my name in the "Computers in Health Care Drawing."

ALL ENTRIES MUST BE RECEIVED BY SEPTEMBER 9, 1985.

VELOSEF Capsules (Cephradine Capsules USP)

Diuretics (potent "loop diuretics," e.g., furosemide and ethacrynic acid)

— Enhanced possibility for renal toxicity.

Probenecid — Increased and prolonged blood levels of cephalosporins, resulting in increased risk of nephrotoxicity.

Drug/Laboratory Test Interactions: After treatment with cephradine, a false-positive reaction for glucose in the urine may occur with Benedict's solution, Fehling's solution, or with Clinitest® tablets, but not with enzyme-based tests such as Clinistix® and Tes-Tape®. False-positive Coombs test results may occur in newborns whose mothers received a cephalosporin prior to delivery. Cephalosporins have been reported to cause false-positive reactions in tests for urinary proteins which use sulfosalicylic acid, false elevations of urinary 17-ketosteroid values, and prolonged prothrombin times

Carcinogenesis, Mutagenesis: Long-term studies in animals have not been performed to evaluate carcinogenic potential or mutagenesis.

Pregnancy Category B: Reproduction studies have been performed in mice and rats at doses up to 4 times the maximum indicated human dose and have revealed no evidence of impaired fertility or harm to the fetus due to cephradine. There are, however, no adequate and well-controlled studies in pregnant women. Because animal reproduction studies are not always predictive of human response, use this drug during pregnancy only if clearly needed

Nursing Mothers: Since cephradine is excreted in breast milk during lactation, exercise caution when administering cephradine to a nursing woman.

Pediatric Use: Adequate information is unavailable on the efficacy of b.i.d. regimens in children under nine months of age.

ADVERSE REACTIONS: Untoward reactions are limited essentially to G.I. disturbances and, on occasion, to hypersensitivity phenomena. The latter are more likely to occur in persons who have previously demonstrated hypersen-

© 1985 E.R. Squibb & Sons, Inc.

sitivity and those with a history of allergy, asthma, hay fever, or urticaria.

The following adverse reactions have been reported following use of cephradine: G.I. — Symptoms of pseudomembranous colitis can appear during antibiotic therapy, nausea and vomiting have been reported rarely. Skin and Hypersensitivity Reactions — mild urticaria or skin rash, pruritus, joint pains. Hematologic — mild transient eosinophilia, leukopenia and neutropenia. Liver — transient mild rise of SGOT, SGPT, and total bilirubin with no evidence of hepatocellular damage. Renal — transitory rises in BUN have been observed in some patients treated with cephalosporins; their frequency increases in patients over 50 years old. In adults for whom serum creatinine determinations were performed, the rise in BUN was not accompanied by a rise in serum creatinine. Others — dizziness, tightness in the chest, and candidal vaginitis.

DOSAGE: Adults — For respiratory tract infections (other than lobar pneumonia) and skin and skin structure infections: 250 mg q. 6 h or 500 mg q. 12 h. For lobar pneumonia 500 mg q. 6 h or 1 g q. 12 h. For uncomplicated urinary tract infections: 500 mg q. 12 h; for more serious UTI, including prostatitis, 500 mg q. 6 h or 1 g q. 12 h. Severe or chronic infections may require larger doses (up to 1 g q. 6 h). For dosage recommendations in patients with impaired renal function, consult package insert.

Children over 9 months of age — 25 to 50 mg/kg/day in equally divided doses q. 6 or 12 h. For otitis media due to *H. influenzae*: 75 to 100 mg/kg/day in equally divided doses q. 6 or 12 h but not to exceed 4 g/day. Dosage for children should not exceed dosage recommended for adults. There are no adequate data available on efficacy of b.i.d. regimens in children under 9 months of age.

For full prescribing information, consult package insert.

HOW SUPPLIED: 250 mg and 500 mg capsules in bottles of 24 and 100 and Unimatic® unit-dose packs of 100. 125 mg and 250 mg for oral suspension in bottles of 100 ml and 200 ml.

785-501

Issued: Jan. 1985



NO POSTAGE
NECESSARY
IF MAILED
IN THE
UNITED STATES

BUSINESS REPLY MAIL

First Class Permit No. 99, Syosset, New York 11791

Postage will be paid by

"Computers in Health Care Drawing" P.O. Box 3036 Syosset, New York 11775



New information from Office of the Commissioner Indiana State Board of Health 1330 W. Michigan St, Indianapolis, Ind. 46206 317-633-8100

PUBLIC HEALTH NOTES

Tourette Syndrome is a neurological disorder that begins in childhood and is usually misdiagnosed as a psychological problem. More than 100,000 Americans and over 250 Hoosiers have been diagnosed with the condition; these statistics have been steadily rising as public understanding about Tourette Syndrome (TS) increases.

April marks the 100th anniversary of the publication of Dr. George Gilles de la Tourette's original treatise on Tourette Syndrome. To commemorate and honor the event, the French Neurological Society is planning to hold a special session following its annual meeting in 1985 in Paris.

Tourette Syndrome is characterized by multiple involuntary muscular movements (tics), uncontrollable vocal sounds, and sometimes involuntary profanity. The disorder usually begins between the ages of 2 and 15 years and first symptoms are involuntary movement of the face, arms, limbs or trunk. Other symptoms, such as touching, repetitive thoughts, and movements and compulsions, can also occur. Old symptoms may disappear and be replaced by new symptoms over time.

Tourette is a nondegenerative condition that occurs in all races, regardless of socio-economic class or gender. Current research indicates that heredity is a predisposing factor in about 30% of cases and that males are afflicted about three times more often than females—possibly because males are naturally endowed with more muscular strength than females, and thus neurological conditions affecting motor activity are more pronounced in males.

Psychological difficulties that may occur in those afflicted with Tourette Syndrome are usually due to their mistreatment by society. Many Tourette individuals are mistakenly institutionalized for four to five years until a knowledgeable friend or health professional recognizes the correlation between their symptoms and Tourette Syndrome. A letter published in the

Journal of the American Medical Association (April 29, 1974) suggested that a case in the files of Georgetown University, which formed the basis for the novel and film, The Exorcist, was in fact about a Tourette youngster. Samuel Johnson, author of an early dictionary of the English language, was also severely afflicted with TS.

ISBH Launches
Public Awareness
Campaign about
Tourette Syndrome

Although no formal research has been done on the incidence of TS in creative individuals throughout the years, it is quite likely that some of the greatest craftsmen, scholars, comedians, and entertainers known to man may have had compulsions like TS that they channeled into socially acceptable skills.

Every case of Tourette's is unique. Many individuals receive help in childhood when a sensitive teacher or relative recognizes compulsive touching or movement, easy distractability, frequent facial grimaces, and uncontrollable vocalizations as being part of this condition. Most TS individuals are considered disruptive, behavior problems and are mistreated as such. For example, a fifth grader already diagnosed with TS in central Indiana was consistently forced to sit in the corner of his classroom because of his compulsive touching, looking around at the students and making squeaking, hissing noises. He was finally transferred to another school system after he told his parents he would "rather die"

than be treated as an emotional problem in school.

Fortunately, the tics associated with TS normally disappear during sleep and intense pleasant activities such as technical, athletic, musical and other creative activity. Consequently, helping the TS individual channel his excessive motor activity into socially acceptable behavior has proven to be the most effective means of coping with the condition.

Successful treatment of TS depends on the severity of symptoms, how well adjusted the patient was prior to the onset of symptoms, the relationship between the patient and his family and type of treatment used. Supportive counseling and certain medications are utilized to control the tics of TS. Stimulant medications such as Ritalin and Cylert have been found to precipitate symptoms of TS such as agitation and excessive movement and should be used only with extreme caution. Haloperidol (Haldol) has been used to control TS with some success, but frequent incidence of severe side effects of this and other drugs make emotional support the undisputed treatment of choice.

A study published in the December 1984 issue of the American Journal of Public Health about the mental health needs associated with TS clearly illustrates the important role counseling plays in promoting self-confidence and healthy coping abilities in individuals afflicted with Tourette's. Medication did not effectively alleviate associated behavioral or psychological problems in these individuals.

The Indiana State Board of Health is presently conducting a statewide public awareness campaign about Tourette Syndrome to promote understanding about the condition. The untapped potential of mistreated individuals with this condition is at stake, and only through public understanding and acceptance of TS can these individuals happily contribute to a better world.

4 CRITICAL QUESTIONS FOR INVESTORS WHO PAY MORE THAN \$10,000 IN TAXES.

1. Do you know the two ways to own an entire portfolio of muncipal bonds with only one investment?

2. Do you know how to use trusts or gifts to defer or reduce your taxes each year?

3. Do you know the most important factor in the

success of every real estate tax shelter?

4. Do you know all the different investments an IRA can invest in?

For the answers and the new insights into taxadvantaged investing that they'll lead to, call for our free TAX SURVIVAL KIT today.



AN AMERICAN CAPUCE MARANA

Shearson/American Express and The Serious Investor.
Minds Over Money.

	American Express, Inc. on St., Suite 1001E na 46204 e your free	REALISIAN ANNUMS. REALISIAN ANN
NAME (please print)		
ADDRESS		
CITY	STATI	ZIP
BUS PHONE	HOMI	PHONI

INDIANA MEDICINE offers its readers a Continuing Medical Education series of articles prepared by the faculty of the Indiana University School of Medicine. The program is coordinated and supported by a grant from the school's Division of Continuing Medical Education.

As an organization accredited for continuing medical education, the Indiana University School of Medicine certifies that this CME activity meets the criteria for one credit hour in Category 1 for the Physician's Recognition Award of the American Medical Association, provided it is used and completed as designated.

To obtain Category 1 credit for this month's article, complete the quiz on page 347.



Bone Marrow Transplantation: From Last Resort to Preferred Therapy

JAN JANSEN, M.D. ARTHUR J. PROVISOR, M.D. JONI VAUGHAN, R.N. RONALD HOFFMAN, M.D.

From the Indiana Bone Marrow Transplant Center, the Elks Caneer Research Center, and the Depts. of Medicine and Pediatrics, Indiana University School of Medicine, Indianapolis.

Correspondence: Jan Jansen, M.D., Dept. of Medicine, Indiana University School of Medicine, Clinical Building, Room 379, 541 Clinical Drive, Indianapolis, Ind. 46223.

ONE MARROW TRANSPLANTA-TION (BMT) is increasingly being applied as therapy for leukemia and other life-threatening blood disorders. Recent advances in transplantation biology have decreased the risks of and increased the indications for this therapeutie modality. These developments mean that physicians will encounter increasing numbers of patients for whom BMT may be an option. The opening of the first bone marrow transplantation center in Indiana seems a good occasion upon which to review the current state of bone marrow transplantation.

Transplantation of bone marrow involves the transfer of a viable population of marrow pluripotential stem cells which result in reconstitution of myelopoiesis and lymphopoiesis in the recipient. Studies in the early 1950s had shown that mice could be rescued from lethal irradiation by infusion of marrow from unirradiated

animals. However, such studies also showed that unless the donor and recipient were completely identical, i.e., members of the same in-bred strain, dangerous immunological complications would occur, leading to graft rejection or to damaging of host tissues by cells from the marrow graft, which was called graft-versus-host disease (GHVD).

The first successful bone marrow transplantations in humans were reported in the late 1960s and involved children with severe combined immunodeficiency. This fatal immunological disease proved to be curable by the infusion of pluripotential stem cells from a normal sibling. Since then, several thousand BMT have been performed in centers all over the world. Basically, such transplants were done for either of two main indications:

• For replacing quantitatively or qualitatively abnormal pluripotential stem cells with normal stem cells. Diseases in this category include severe aplastic anemia, paroxysmal nocturnal hemoglobinuria, severe combined immunodeficiency, Wiskott-Aldrich syndrome and other immunological disorders, and more recently hemoglobinopathies and some inborn errors of metabolism such as osteopetrosis and Hurler syndrome.³

• For replacing pluripotential stem cells that are being damaged or killed by aggressive chemotherapy and/or radiotherapy for neoplastic diseases. In this category belong such diseases as acute leukemia, chronic myelogenous leukemia, malignant lymphoma, multiple myeloma, hairy-cell leukemia, acute myelofibrosis and neuroblastoma.

The bone marrow graft can either originate from the recipient himself or from a donor. In case it is obtained from the patient himself, i.e., autologous BMT, the marrow is frozen and stored in liquid nitrogen, while the patient undergoes high dose chemoand/or radiotherapy. Obviously, such autologous BMT cannot be used to replace abnormal stem cells, but only to protect stem cells from exposure to the damaging effects of cytotoxic therapy. Although autologous BMT has the great advantage of not exposing the recipient to the risks of GVHD, it also carries the risk of reinfusing neoplastic cells with the marrow graft if the bone marrow was overtly or submicroscopically involved with tumor. The introduction of monoclonal antibodies reactive with neoplastic cells but not with hematopoietic stem cells, may lead to new application of autologous BMT. At present, autologous BMT should still be considered experimental, and should only be performed within a research setting.

In the situation when a bone marrow donor is used as the source of hematopoietic stem cells, the ideal setting is an identical twin donor. Such a syngeneic marrow graft contains normal stem cells and does not give

TABLE 1

Diseases that Have Been Shown to Be Curable with Allogeneic Bone Marrow Transplantation

Severe Aplastic Anemia Fanconi's Anemia

Paroxysmal Nocturnal Hemoglobinuria

Severe Combined Immunodeficiency

Wiskott Aldrich Syndrome Acute Myelogenous Leukemia Acute Lymphoblastic Leukemia Chronic Myelogenous Leukemia Acute Myelofibrosis

rise to GVHD, because donor and recipient are immunologically identical. Obviously, only rare patients possess such an ideal donor. Therefore, most BMT have been performed with marrow grafts from donors who were not immunologically identical with the recipient, i.e., allogeneic BMT.

Until recently, almost exclusively siblings who were identical with the patients for the major histocompatibility complex (HLA-system) have been used. The HLA system, which is located on the short arm of chromosome 6, has proven to be of major importance for the success of a BMT. In case of mismatch between the donor and recipient, the incidence of graft rejection and/or severe GVHD has been much higher. Since the HLAsystem is inherited in a mendelian way, the present family size in the U.S. means that about 30-35% of patients will have an HLA-matched sibling donor. If a patient has many siblings, obviously the chances of having an HLA-matched donor are much better. Recently, attempts have been made to increase the proportion of potential candidates for BMT by turning to HLA-partly matched sibling donors and HLA-matched nonrelated donors. The first studies in this direction have been promising, and will undoubtedly cause a sharp increase in the number of transplants over the next couple of years.

Bone Marrow

Transplantation Procedures

The patient is conditioned for BMT with cytotoxic therapy, most often a combination of high-dose chemotherapy and radiotherapy. In case of BMT for replacing abnormal stem cells, the goals of this conditioning are to get rid of the recipient's bone marrow cells and thus create an environment in which the new marrow might be established. In addition, the preparative regimen eliminates the immunologic resistance of the recipient which might otherwise reject the marrow graft.

These goals can be achieved with high dose cyclophosphamide (50 mg/ kg/day x 4), but often radiotherapy in the form of total lymphoid irradiation (500-750 rad) or low dose total body irradiation (300 rad) is added to further decrease the risk of rejection.7 In case of neoplastic disease, the conditioning regimen in addition aims at eliminating as many tumor cells as possible. For these patients, most centers use a combination of high dose cyclophosphamide (60 mg/kg/day x 2) and total body irradiation (800-1000 rad). In an attempt to eradicate the malignant cell population, this combination is virtually on the edge of what the human tissues, such as lung and intestinal tract, can tolerate.

The irradiation to the lungs increases the risk of interstitial pneumonitis, which is one of the major transplant related complications. Recently, many centers have switched to fractionated total body irradiation, which diminishes the acute side effeets and incidence of interstitial pneumonitis, but might also diminish the anti-neoplastic effect, resulting in more relapses of neoplastic disease.8 Whatever approach is chosen, total body irradiation requires a high level of sophistication from the radiotherapist and radiophysicist to deliver the exact dose to all parts of the human body.

The chemotherapy component of

the conditioning regimen usually is administered on days -6 until -3 before BMT, whereas the irradiation is administered on day -1. The next day, the bone marrow donor is put under general anesthesia and from both sides of the pelvis, starting with the posterior iliac crests, bone marrow aspirates of 2-5 ml each are obtained until at least 200 x 106 nucleated cells have been collected per kg body weight of the recipient. Depending on the size of the recipient and the cellularity of the donor marrow, this will require from 200 to 1,200 ml of marrow suspension diluted with peripheral blood. The potential untoward effects for the donor, who obviously must be fit to undergo general anesthesia, involve the risk of anesthesia and a mild soreness at the site of aspiration that seldom persists for more than a week.

The collected marrow is processed to remove fat and bone particles, and then infused into the patient through a right atrial catheter. Subsequently, a waiting period of 1.5 to 3 weeks follows until the donor marrow starts delivering the first neutrophils and red cells to the peripheral blood of the patient. After 3-4 weeks the absolute neutrophil count in most patients is over 500/mm³.

Graft-versus-Host Disease

Between 20 and 70% of patients who receive marrow grafts from HLA-matched sibling donors will develop some symptoms of graft-versus-host disease (GHVD). The acute variant of the disorder can involve the skin, liver and gut. The cutaneous manifestation, which is the most frequent, is an itching rash; liver involvement can result in cholestatic jaundice, and gut involvement in diarrhea. The latter is the most dangerous and is primarily responsible for the 25% mortality associated with acute GVHD.9

The most widely used approach to prevent acute GVHD has been weekly administrations of methotrexate. This cytotoxic drug, which had been shown to be capable of reducing GVHD in a canine model, delays engraftment and is of questionable efficacy in the prevention of acute GVHD in humans.10 More recently, cyclosporine has been advocated for the prevention of acute GVHD. This very active immunosuppressive agent has been successfully used in organ transplantation. Early results from studies comparing cyclosporine and methotrexate in BMT suggest that the former drug may decrease the severity of acute GVHD but not its incidence; more importantly, cyclosporine did not have an impact on overall survival.11

T-lymphocytes in the marrow graft are held responsible for the acute GVHD reaction.¹² Therefore, many attempts are now being made to remove these T-lymphocytes from the graft prior to infusion into the recipient. The first results indicate that acute GVHD can be nearly completely prevented in the HLA-matched sibling situation.¹³ In addition, BMT with less perfectly matched donors may become more feasible now,⁶ which would mean a major breakthrough in clinical transplantation.

TABLE 2

Diseases That May Prove Curable with Allogeneic Bone Marrow Transplantation

Sickle Cell Anemia Thalassemia Major Osteopetrosis Mucopolysaccharidoses (Hurler,

etc.) Mucolipidoses (Gaucher, etc.)

Muconpidoses (Gaucher, etc.) Preleukemia Multiple Myeloma

Hairy Cell Leukemia Malignant Lymphoma

Neuroblastoma Chediak-Higashi Syndrome

Ataxia-teleangiectasia Chronic Granulomatous Disease

Supportive Care

Recipients of a bone marrow graft are extremely myelosuppressed and immunosuppressed. Therefore, supportive care and infection prevention should receive extensive attention. Blood products, in particular red cells and platelets, should be easily available. They must be irradiated to prevent the white cells in these preparations to engraft in the patient and to cause acute GVHD. The blood products should preferably derive from donors who have not yet been exposed to cytomegalovirus.

During the first 3-4 weeks following the transplant, patients are extremely susceptible to bacterial infections. Most of the infections are caused by micro-organisms in the intestinal tract (E.coli, Pseudomonas, Klebsiella, Candida), on the skin (Staphylococci), or in the air (Aspergillus). To prevent these infections, patients should receive gut decontamination and be nursed in sterile environments. Fungal and viral infections are also common in BMT patients. In particular, infection with cytomegalovirus can be dangerous. Most of the infections are reactivation of dormant cytomegalovirus, which cannot easily be prevented. However, recent studies using hyperimmune plasma indicate that progress in this field is finally being made.

The prevention and treatment of infections in BMT patients requires experienced staff in microbiology, infectious diseases, infection control, and gnotobiology.

Patient Selection

The risks of BMT seem to increase considerably with the age of the patient. Since patients over the age of 45 mostly do very poorly, most centers only accept patients under 40-50 years of age. In general, in the early years patients were transplanted at the terminal phase of their disease. This selection process was partly responsible for the very poor results of BMT in that era. Now it is generally



Laminar air flow room at Indiana Bone Marrow Transplant Center.

accepted that BMT should be performed when the patient is in good clinical condition and, in case of neoplastic disease, when the tumor load is minimal, which means during clinical remission. For some disorders, BMT now is the preferred therapy, which is also illustrated by the fact that it is reimbursed by most third-party carriers. For patients who have an HLA matched sibling donor, allogeneic BMT can now be considered the therapy of choice for the following diseases:

- Severe A plastic Anomia: In particular in children and adolescents, there is no doubt that BMT offers the best prospects, with 60-80% of the patients being cured by this approach. It is important to refer patients with severe aplastic anemia to a transplant center as soon as possible to prevent alloimmunization by repeated transfusions.
- Acute Myelogenous Leukemia: With conventional chemotherapy, most studies do not report long-term survival of more than 15 20% of the patients. With allogeneic BMT during first complete remission, the disease free survival has been reported to be 60 70% for children and 40-50% for adults. In second remission, the disease free survival following BMT

will be somewhat worse due to an increased risk of relapse, but is still much better than with chemotherapy. Patients with acute myelogenous leukemia should be sent for BMT early in their first complete remission. If, for whatever reason they missed their chance during first remission, then they should be offered the option as soon as they reach their second complete remission. Some groups even advocate to transplant patients in early relapse instead of waiting for a second remission.

- AcuteLymphocyticLeukemin: The majority of children with acute lymphocytic leukemia are currently being cured with intensive chemotherapy. 16 Obviously, these patients would not be helped with BMT. However, patients who relapse on therapy or shortly after the completion of therapy, have a very grim outlook. When these patients are transplanted in second remission, up to 50% can still be cured. This figure drops to \pm 30% for patients in third remission. Adults with acute lymphocytic leukemia have a much poorer prognosis than children, even with modern chemotherapy. Therefore, many investigators believe that adults with this disease should be transplanted in first or second remission, since this results in a disease-free survival of 30-50% of the patients.^{□1}
- · Chronic Myelogenous Leukemia: Patients with chronic myelogenous leukemia survive on average for four years after diagnosis, but ultimately all die from their disease. With BMT, for the first time, a curative thera peutic modality has become avail able. Between 50 and 70% of patients with this disease appear to be cured by BMT with complete eradication of the neoplastic clone. Although the timing of the BMT procedure still poses a problem, many workers in the field believe that BMT early in the second year after diagnosis offers the best chance to these patients.
- Severe Combined Immunodeficuncy: Allogeneic BMT is first-line

therapy in infants with this and other forms of life-threatening immunodeficiency. Patients should be referred to a BMT center as soon as the diagnosis is made or strongly suspected.

· Other Indications: Children and young adults who have an HLAmatched sibling donor should be considered for allogeneic BMT if they have a fatal disease that could be expected to respond to the chemotherapy and radiotherapy that can be used in the transplant setting. Such diseases include neuroblastoma, myeloma, preleukemia with life-threat ening complications of pancytopenia, and high-grade malignant lymphoma. In the years to come, metabolic diseases caused by enzyme deficiencies that can be corrected by the transfer of normal hematopoietic stem cells will add a new dimension to allogeneic BMT. As soon as the transplantrelated mortality can be more effectively controlled, many patients with such metabolic diseases as Gaucher's disease, mucopolysaccharidoses, osteopetrosis and others, will become candidates for transplantation early in the course of their disease, at a time when the enzyme deficiency has not yet caused irreversible damage.

Bone Marrow Transplantation at Indiana University

In January 1985, a bone marrow transplantation program started at Indiana University School of Medicine as a joint effort of the Departments of Medicine and Pediatries. The BMT unit is located at Riley Hospital for Children and has the capacity of four transplant patients at a time. The patients are nursed in laminar air flow rooms (Figure) to prevent bacterial and fungal infections. Particular attention will be paid to the psychological well-being of the pediatric and adult patients in this artificial environment. This BMT unit has all facilities necessary for total care of the patient and is an intensive care unit in its own right. The experience gained in this unit will be very helpful in the design of a larger and more permanent BMT unit to be opened at Riley Hospital within the next 2-3 years.

The BMT program at Indiana University serves two important goals. First, it can serve as a clinical transplant center for many patients from Indiana and surrounding states who until now had to be sent away far from home to undergo BMT. Such emotionally and financially stressful therapies should preferably be performed not too far from the home town of the patient, in order to benefit from the support of repeated visits from relatives and friends. The medical follow-up also can be better shared by local physicians and university hematologists who are already used to working together. Secondly, the BMT unit can be an important part of the basic and clinical research of the pediatric and adult hematology/oncology divisions. Thus, the transplant program can benefit from new approaches developed in the basic research program, and can pose new questions to the basic research. In the past it has been shown that BMT can only thrive in close collaboration with basic hematological and immunological research.

Presently, the BMT program at Indiana University has protocols for the diseases listed in *Table 3*. Protocols for patients with myeloma (< 45 years), neuroblastoma, and severe immunodeficiencies will soon follow.

Physicians who would like more information, or would wish to discuss potential candidates for BMT should contact the I.U. Bone Marrow Transplant Unit at (317) 264-3485. Inquiries can be directed to Dr. Jan Jansen or Dr. Arthur Provisor.

TABLE 3

Indications for Which Patients Are Currently Being Accepted for BMT at Indiana University Bone Marrow Transplantation Program

Diagnosis	Stage	Age (years)
Severe Aplastic Anemia		≥ 1 , ≤ 45
Acute Myelogenous Leukemia	1st complete remission 2nd complete remission	$\geq 1, \leq 45$ $\geq 1, \leq 45$
Acute Lymphoblastic Leukemia	1st complete remission 2nd complete remission 3rd complete remission	$\geq 18, \leq 45$ $\geq 1, \leq 45$ $\geq 1, \leq 20$
Chronic Myelogenous Leukemia	1st Chronic Phase Early Accelerated Phase 2nd Chronic Phase	$\geq 1, \leq 45$ $\geq 1, \leq 45$ $\geq 1, \leq 45$

REFERENCES

- Jacobson LO, et al: Recovery from radiation injury. Sewnee, 113:510-511, 1951.
- Gatti RA, et al: Immunological reconstitution of sex-linked lymphopenic immunological deficiency. Lancet, 2:1366-1369, 1968.
- O'Reilly RJ, et al: Marrow transplantation for congenital disorders, Semin Hematol, 21:188-221, 1984.
- Thomas ED: Marrow transplantation for malignant diseases. J. Clin Oncology, 1:517-531, 1983.
- Jansen J. et al: Removal of neoptastic cells from autotogous bone marrow grafts with monoclonal antibodies. Semin Hematol, 21:164-181, 1984.
- Powtes RL, et al: Mismatched family donors for bone marrow transplan tation as treatment for acute leukemia. Lancet, 1:612-615, 1983.
- Ramsay NKC, et al: Total lymphoid irradiation and cyclophosphamide conditioning prior to bone marrow transplantation for patients with se vere aplastic anemia. Blood, 62:622 626, 1983.
- Van Bekkum DW: Conditioning regimens for marrow grafting. Semin Hematol, 21:81-90, 1984.
- Thomas ED, vt al: Bone marrow transplantation. N Engl J Med, 292:832-843, 895-902, 1975.
- Lazarus HM, et al: Incidence of acute graft-versus-host disease with and without methotrexate prophylaxis in allogeneic bone marrow transplant patients. Blood, 64:215-220, 1984.
- 11. Storb R, ct al: Pretiminary results of prospective randomized trials com

- paring methotrexate and cyclospor ine for prophylaxis of graft versushost disease after HLA-identical marrow transplantation. *Transplant Proc*, 15:2620-2623, 1983.
- Korngold R, Sprent J: Lethal graft versus-host disease after bone marrow transplantation across minor histocompatibility barriers in mice. J Exp Mcd., 148:1687-1698, 1978.
- Prentice HG, et al: Deptetion of T lymphocytes in donor marrow prevents significant graft versus-host disease in matched allogeneic leukemic marrow transplant recipients. Lancet, 1:472-475, 1984.
- Lister TA, Rohatiner AZS: The treat ment of acute myelogenous feukemia in adults. Semin Hematol, 19:172-192, 1982.
- Appelbaum FR, et al: Allogeneic mar row transplantation for acute non tymphoblastic teukemia after first relapse. Blood, 61:949-953, 1983.
- Jacobs AD, Gale RP: Recent advances in the biology and treatment of acute tymphoblastic leukemia in adults. N Engl J Med, 311:1219-1231, 1984.
- Buckner CD, Clift RA: Marrow transplantation for acute lymphoblastic teukemia. Semin Hematol, 21:43-47, 1984.
- Koeffler HP, Gotde DW: Chronic myelogenous leukemia-new concepts. N Engl J Med, 304:1201-1209, 1269-1274, 1981.
- Speck B, et al: Allogeneic bone marrow transplantation for chronic myelogenous leukemia. Lancet, 1:665-668, 1984

OVER 100,000 PHYSICIANS READ POSTGRADUATE MEDICINE*

Join Them!

January 1985 Media-Chek

Postgraduate Medicine

Now Issued 16 Times A Year.









Assumptions!





1493

In 1492 the world was assumed to be flat In 1985 skin testing for Histoplasmosis is assumed, by some, to induce CF antibody titer changes

Both assumptions have been proven lalse.

You most likely know about the world being round, but you may not know that Histolyn-CYL, a specific mexpensive, easy to use skin test, can give you results

in forty-eight hours—without CF antibody titer changes.

Histolyn-CYL[®]

Clinically proven.

For more information and clinical lacts call, or write to:

BERKELEY BIOLOGICALS 1831 Second St. Berkeley, CA 94710 (415) 843-6846

pro Berlobo Indianals

INDIANA GAZETTE

TALWIN NX...BUILT-IN PROTECTION AGAINST MISUSE BY INJECTION

Major Analgesic Reformulated

Now contains naloxone, a potent narcotic antagonist

Extra security added to proven efficacy and safety

No longer do doctors have to deny patients the benefit of an effective oral analgesic for fear of its misuse by injection.

Winthrop-Breon Laboratories has met a nagging problem by reformulating TALWIN® 50 (pentazocine HCl tablets) with the addition of naloxone, equivalent to 0.5 mg base. The reformulated product is called TALWIN® Nx.

The original formulation had been subject to a form of misuse among street abusers known as "T's and Blues." TALWIN 50 and PBZ*, an antihistamine, would be ground up together, put into solution, and injected intravenously. The combination produced a heroin-like high. Because naloxone is a narcotic antagonist when injected intravenously, it acts to nullify any high a "T's and Blues" addict might expect from the pentazocine in a combination of TALWIN Nx and PBZ. When taken as directed orally, the naloxone component of TALWIN Nx is inactive. Thus, TALWIN Nx continues to be a safe, effective, oral analgesic for the relief of moderate to severe pain, now providing added security against misuse.

*Registered trademark of Ciba-Geigy Corp for tripelennamine.



The reformulation of Talwin 50 to Talwin Nx involved the addition of 0.5 mg naloxone to help prevent misuse by injection.





Analgesic for Oral Use Only

Contraindications: (4,) empression. (5) orthor pentazon (6.5)

NALWIN Nava intended by some and WAWNIN Nava bear to reach the man of MAWNIN Nava bear to the above the man of the with other above and some and with other above and assume on the properties. The properties of the above the ab

Winthrop Breon WPL 1411TSER

How well are you communicating with your PATIENTS?



Patient compliance—how well patients follow instructions about taking prescription drugs—is something that worries health professionals, according to a recent Harris survey. And with good reason. A number of studies have shown that a third to a half of all drugs are taken improperly. Yet a Chilton survey found that only 2 to 4 percent of patients question their doctors about drugs prescribed for them.

It's up to health-care providers to open up the dialogue about prescription drugs. When you write, dispense or check on a prescription, make sure your patient knows:

- The name of the drug
- Its purpose—what conditions does it treat?
- How and when to take the drug-and when to stop taking it
- What food, drinks and other drugs to avoid while taking it
- What side effects may result—are they serious, short-term, long-term, etc.?
- A message from the Food and Drug Administration.

Vascular Access and Nosocomial Infections

Critical Care Medicine

REGIS LAGLER, M.D. Indianapolis

NTRAVASCULAR DEVICES are used in many therapeutic and diagnostic techniques in critical care medicine. Peripheral venous, central venous, and arterial cannulation are needed for administration of fluid, medications, blood products, parenteral nutrition, and hemodynamic monitoring. Vascular eatheters are an important potential source of nosocomial bacteremia, or more commonly, local infection (a positive catheter culture). The purpose of this review is to examine existing knowledge concerning catheter-related infection and sepsis.

Study Variables

When reviewing publications regarding infection and venous or arterial catheters, one must pay particular attention to certain aspects of the study (*Table*). Given these many variables, a comparison of published reports is difficult! Early reviews have therefore indicated a wide range of catheter infection rates (4% to 60%).

Some aspects of these variables deserve special attention. Qualitative catheter culture consists of simple immersion of a catheter segment in a li-

quid medium. It is diagnostically nonspecific. Semiquantitative technique refers to direct culture of a catheter segment on blood agar. Quantitative cultures involve immersion and flush of the catheter segment with a known quantity of liquid culture medium which is then transferred to an agar plate.

Fifty per cent of positive qualitative catheter tip cultures show growth of a contaminant organism which cannot be distinguished from a pathogen. Semiquantitative or quantitative cultures permit identification of contaminated catheter tip cultures by demonstrating colony counts below an identified threshold level.^{2,6,4}

Line-related sepsis should be defined as identical pathogen growth from the catheter segment and a concomitant blood culture. In obtaining such a blood culture, it should be recalled that poor correlation^{5,6,7} exists between catheter tip cultures and blood cultures drawn through the catheter. In general, it is very difficult to assure that a catheterdrawn specimen has been accomplished aseptically. For example, the incidence of contaminated stopcocks within arterial lines was 17% despite a meticulous fine care protocol and strict, aseptic sample drawing technique. Thus, I feel the most reasonable approach, when line sepsis is suspected, is to simply draw two blood cultures from separate venipuncture sites. Also, if antibiotics are in use, a resin containing blood culture medium for antibiotic absorption is advised.

The patient population represented

will also influence the catheter infection rate. Critically ill patients will be at higher risk of nosocomial infection than patients having just undergone elective surgery.

Frequency of blood sampling aspiration or blood product administration through the catheter can influence infection. Measurement of cardiac output and central venous pressure increases infection risk, particularly if the closed tubing circuit must be opened to perform the measurement. Location of the continuous flow device in relationship to a sampling port can influence the frequency of nosocomial infection.* Similarly, the replacement frequency of flush solutions, transducer domes, pressure lines, and continuous flow devices will influence infection risk.

Incidence of Infection

Every type of vascular cannula may cause bacteremic sepsis. The risk depends on the type of catheter, anatomic location, and institutional policies governing eatheter care and insertion technique.

Peripheral venous cannulation has been associated with catheter infection rates of 10% to 13% by semiquantitative or quantitative culture. Associated bacteremia ranged from 2% to 7%.24 Since there is a well documented correlation between eatheter infection and duration of cannulation, all peripheral venous can nulas (even long catheters used for pressure monitoring or hyperalimentation) should be replaced every 72 hours.

The author is Associate Director, Adult Intensive Care Units, Methodist Hospital of Indiana, 1604 N. Capitol Ave., Indianapolis, Ind. 46202.

Pulmonary artery and central venous pressure monitoring catheter infection rates range from 8% to 16%, and line-related sepsis appears to be about 2.5%. These figures relate to catheters inserted percutaneously by the Seldinger technique directly into the subclavian or internal jugular vein. A prospective study advocating removal of such lines after 72 hours was based on positive, catheter-drawn blood cultures. The clinical relevance of the positive cultures is not clear since all blood cultures drawn by venipuncture were negative.

It is not clear how frequently such catheters should be replaced. The decision should be based on such factors as need for the catheter, clinical status of the patient and appearance of the exit site (not always well correlated with catheter infection). Centrally placed catheters for hyperalimentation or infusion therapy likewise demonstrate line-related sepsis rates of 2% or less.10,11 These excellent results have generally occurred in institutions with nutritional support teams trained to uphold vigorous policy and procedure issues regarding inser tion and maintenance of such lines. With regard to multilumen catheters, there is no significant difference in the incidence of line-related infection or sepsis among triple lumen, single lumen, and pulmonary artery catheters.12

Surgically implanted central venous catheters like the Hickman eatheter are very useful for long-term cannulation. An excellent prospective study and review¹³ showed a catheter infection rate of 12.4% and a line-related sepsis rate of 8.5% for Hickman catheters in place for a mean duration of 128 days. Also demonstrated was a strong correlation between catheter thrombosis and infection/sepsis. Surprisingly, patient age, line duration, fever, neutropenia, concurrent antibiotic use or the presence of a distant focus of infection at the time of catheter insertion were not correlated with later development of line infection

TABLE

Study Variables Affecting Results

- 1) Whether or not the catheter was cultured
- 2) Particular segment of catheter cultured
- $3) \qquad \text{Technique of catheter culture, i.e., qualitative, quantitative, or semiquantitative} \\$
- 4) Presence or absence of concomitant blood cultures
- 5) Technique of blood culture
- 6) Representative patient population
- Frequency of sample aspiration, blood product administration, or parameter determination (CVP, cardiac output)
- 8) System components (transducer, stopcocks, pressure lines, continuous flow devices)
- 9) Location and change frequency of system components

or related sepsis with these devices.

Arterial catheter-related sepsis is well-described^{4,6,14,15,16,17} and is about 2% while eatheter infection approximates 10%. There is little difference between the femoral or radial site. Radial arterial lines should be discontinued after four to five days.14 It is not clear what a proper frequency of change might be for femoral arterial lines. Again, the decision should be based on the need for continued monitoring, catheter function, exit site appearance, and clinical condition of the patient. Axillary artery catheters provide an excellent means for hemodynamic monitoring 18 but information on related infection and sepsis is lacking. Cutdowns for arterial access are to be avoided. Infection and line-related sepsis rates are three and nine times the respective rates for percutaneous placement.14

Etiology

The risk of sepsis from an intravascular device is highest in an ICU because of multiple access sites, duration of catheter use and the tendency for skin colonization with virulent organisms. As with an open wound, organisms invade the percutaneous cannula tract from the skin. Infections originate from organisms inherently colonized on the patient's skin or placed there by medical or support personnel. Staphylococcus epidermidis is the most common organism related to catheter infection. It is less commonly related to line sepsis but certainly can be the

cause of life-threatening septicemia.¹⁹ Staphylococcus aureus, klebsiella, serratia, enterobacter, enterococci and Candida albicans are common etiologic agents of line-related infection and sepsis. Gram-negative rods are much more prevalent when patients have a focus of supportive infection. Hematogenous seeding of catheters from a distant focus of infection ranges from 2% to 14%. ^{13,14}

Prevention and Treatment

Handwashing is the most important infection control maneuver and Chlorohexidine (Hibiclens) is the most effective agent for lowering total counts of staphylococcus aureus and gram-negative rods on hands. The insertion site should be scrubbed with a povidone-iodine solution (Betadine). Shaving the insertion area may even increase the rate of local infection.1 Topical antimicrobial ointments placed on the insertion site contribute minimally to the prevention of line-related infection and sepsis. Of more importance is daily inspection of the exit site, cleaning with Betadine and application of a clean occlusive dressing.

Central and arterial cannulation should be done with gloves and drapes. Flush fluids should be changed every 24 hours and transducer domes, pressure tubing, and continuous flow devices should be changed every 48 hours.

There is no doubt that specific and effective line maintenance protocols and adequately trained personnel are the best insurance against line-related sepsis. Catheters maintained by the institutional nutrition support team had a nine to ten-fold lower rate of septic complications than catheters maintained by ward personnel.¹⁰

Sepsis related to fluid contamination is one-tenth as common as sepsis associated with catheters. Hypertonic glucose and amino acids are inhibitory to most organisms except *Candida albicans*. However, if hyperalimentation fluid is promptly administered or stored at 4° prior to its use, contamination is rare.

It is generally thought that periodically changing a catheter over a guidewire is not a good infection control measure. In fact, some will argue that the practice will increase the risk of infection. When a new catheter is inserted through an old tract in the presence of an infected line, the new catheter is immediately contaminated by the same organism.7 However, a recent article20 claimed that infection could be treated or prevented by guideware exchange. Total parenteral nutrition and central pressure lines were changed on a weekly basis. Results claimed that 75% of positive catheter cultures cleared after the first exchange and all cultures were eventually negative by the fourth exchange. These results suggest that the fibrin sheath on the catheter is the nidus of infection.

Guidewire exchange is very useful in the event of mechanical dysfunction (for example, catheter kink or inadvertent partial withdrawal) and can also be useful in the patient who develops unexplained fever but is not overtly septic. The central catheter is removed over a guidewire and a new catheter is inserted into the same tract. If the culture of the old catheter is positive, the new catheter should be removed. Intravascular lines in a clinically sep-

tic patient should not be exchanged but removed and cultured.

Summary

Guidelines for cannula insertion, cannula duration, and line maintenance protocols have been outlined. An approach for suspected infection was suggested and caveats related to the interpretation of published information regarding infection and sepsis were presented. Intravascular line sepsis is largely preventable when actions regarding vascular access draw on the existing knowledge base.

One must bear in mind that the incidence of line-related sepsis is finite, regardless of the type of vascular access. Positive cases will be encountered but the incidence is so low that any single physician is unlikely to see more than an occasional case. It is, therefore, important to maintain a high index of suspicion regarding intravascular access and nosocomial infection.

REFERENCES

- Maki DG, Goldman DA, Rhames FS: Infection control in intravenous therapy. Ann Intern Med, 79:867-887, 1973.
- Maki DG, Weise CE, Sarafin HW: A semiquantitative method for identifying intravenous catheter-related infection. N Engl J Med, 296:1, 305:309, 1977.
- Cleri DJ, Corrado ML, Seligman SJ: Quantitative culture of intravenous catheters and other intravascular inserts. J Infect Dis, 141:781-786, 1980.
- Thomas F, et al: The risk of infection related to radial vs. femoral sites for arterial catheterization. Crit Care Med, 11:807-812, 1983.
- Pinilla JC, et al: Study of the incidence of intravascular catheter infection and associated septicemia in critically ill patients. Crit Care Med, 11:21-25, 1983.
- Singh S, et al: Catheter colonization and bacteremia with pulmonary and arterial catheters. Crit Care Med,

- 10:736 739, 1982.
- Graeve AH, Carpenter CM, Schiller WR: Management of central venous catheters using a wire introducer. Am J. Surg., 142:752-755, 1981.
- Shinozaki T, et al: Baeterial contamination of arterial lines: A prospective study. JAMA, 249:223-225, 1983.
- 9. Applefield JJ, et al: Assessment of the sterility of long-term cardiac catheterization using the themodilution Swan-Ganz catheter. Chest, 74:377-380, 1978.
- Nehme AE: Nutritional support of the hospitalized patient and the term concept. JAMA, 243:1906, 1980.
- Padberg FT, et al: Central venous catheterization for parenteral nutrition. Ann Surg, 193:264-270, 1981.
- Miller JJ, Bahman V, Mathru M: Comparison of the sterility of long-term central venous catheterization using single lumen, triple lumen, and pulmonary artery catheters. Crit Care Med, 12:634-637, 1984.
- Press OW, et al: Hickman catheter infections in patients with malignancies. Medicine, 63:189 200, 1984.
- Band JD, Maki DG: Infections caused by arterial catheters used for hemodynamic monitoring. Am J Med, 67:735-741, 1979.
- Gardner RM, et al: Percutaneous indwelling radial artery catheters for monitoring cardiovascular function. N Engl J Med., 290:227-231, 1974.
- Russell JA, et al: Prospective evaluation of radial and femoral artery catheterization sites in critically ill adults. Crit Care Med. 11:936-939, 1983.
- Soderstrom CA, et al: Superiority of the femoral artery for monitoring. Am J. Surg., 144:309-312, 1982.
- Bryan Brown CW, ct al: The axillary artery eatheter. Heart Lung, 12:492-497, 1983.
- Christensen GD, et al: Nosocomial septicemia due to multiply antibiotic-resistant Staphylococcus epidermidis. Ann Intern Med, 96:1-10, 1982.
- Bozzetti F, ct al: Prevention and treat ment of central venous catheter sepsis by exchange via a guidewire. Ann Surg, 198:48-52, 1983.

Otosclerosis: A Preventable Cause of Hearing Loss

JERRY L. HOUSE, M.D. L. B. TUBERGEN, M.D. **Indianapotis**

TOSCLEROSIS is a common cause of hearing loss and is an osteodystrophy of the bony portion of the ear. Otosclerosis often results in fixation of the stapes bone in the middle ear and a conductive hearing loss, but it may also cause eochlear damage and sensorineural hearing loss. Otosclerosis characteristically produces hearing loss in early and middle adulthood, but may begin as late as the sixth or seventh decade of life. Histologic otosclerosis affects approximately 8% of Caucasians, particular ly those of European ancestry. The incidence of elinical hearing loss from otosclerosis has been variably estimated between 0.3 and 1% of the Caucasian population. Otosclerosis is uncommon in Blacks and in Orientals. Otosclerosis usually causes a bilateral, symmetrical hearing loss. The disease is more common in women. Otoselerosis is a genetic disease and the mode of inheritance is still debated, but it appears to be an autosomal dominant gene with a 40% penetrance rate.

Otosclerosis is limited to the temporal bone. As the otosclerotic focus becomes active it causes fixation of the stapes and produces a conductive type hearing loss. This type of hearing loss can be corrected by removing the stapes and replacing it with a suitable prosthesis.

Correspondence: Jerry L. House, M.D., 9102 N. Merrdian St., Suite 525, Indianapolis, Ind. 16260

Abstract

Otosclerosis is a common eause of hearing loss affecting up to 1% of the population. Otosclerosis may cause conductive hearing loss from stapes fixation or sensory loss from cochlear involvement. Patients with otosclerosis may have their conductive hearing loss surgically restored, but newer developments in medical treatment may also make much of the sensorineural hearing loss from otosclerosis preventable.

Otosclerosis may also involve the cochlear or vestibular portion of the inner ear. The patient may, therefore, have either sensorineural hearing loss or vestibular symptoms from inner ear involvement by the otosclerosis. When otosclerosis begins it is actually a bony softening or "spongiosis" due to resorption of a small area of bone at the anterior edge of the stapes footplate (Fig. 1). Later in life this spongiotic bone becomes hard or sclerotic and hence the name otoselerosis.

Diagnosis

The diagnosis of otosclerosis is a clinical one, made on the triad of unexplained conductive hearing loss, intact and mobile tympanic membrane, and no evidence of eustachian tube dysfunction. The initial symptom of otosclerosis is almost always hearing loss, which is very gradual in onset. As the hearing loss progresses, the patient becomes more aware that there is a hearing problem.

Patients with otosclerosis and conductive hearing loss characteristically have a soft speaking voice. The onset of the hearing loss is commonly between the third and fifth decade of life, is more common in women and is very common during or after pregnancy or lactation. The hearing loss is usually bilateral and symmetrical. Physical examination characteristically shows a normal tympanic membrane with normal mobility on pneumatic otoscopy.

Tuning fork testing with a 512 Hertz tuning fork will show a Rinne test with bone conduction greater than air conduction if there is significant conductive hearing loss present. The Weber test, done by placing a 512 tuning fork on the midline of the forehead, is usually heard in the ear with the most conductive hearing loss present. Prior to doing this test, one should instruct the patient that the fork may be heard in the poorer ear for hearing. Patients often like to give the physician the answer they think the doctor wants and so one should always precede the Weber test with this explanation to get accurate results. If a very significant degree of conductive hearing loss is present, the 1024 Hertz tuning fork will also show bone conduction greater than air conduction in the involved ear.

Pure tone audiometry characteristically will show an air-bone gap which means that the patient hears better with bone conducted stimuli than through the earphone itself. The conductive hearing loss or air-bone gap is usually greater for the lower frequencies (Fig. 2). Polytomography and impedence audiometry are often helpful in making the diagnosis.

The differential diagnosis of otosclerosis includes: serous otitis media, middle ear fibrosis, primary cholesteatoma in the middle ear, post traumatic ossicular lesions and other disorders of the ossicular chain.

Surgical Treatment

Removal of all or part of the fixed stapes bone is the surgical treatment of choice for hearing restoration in stapedial otosclerosis. This surgical treatment has been commonly employed for the last 25 years, and the results are often dramatic and the hearing gain long lasting. This surgery restores that part of the hearing loss due to stapes fixation. The stapes is either removed partially and repositioned or it is totally removed and a synthetic material such as a wire used to restore the continuity of the ossicular chain. This surgery may be done under local anesthesia and the hospitalization is usually brief. This microscopic surgery is very delicate and surgical results have become more dependable with refinements in technique.

Medical Treatment

The medical treatment of otoselerosis may prove to be the most significant advance of the decade for treatment of this disease. The medical treatment of otosclerosis is still controversial, however, and the FDA has not officially approved sodium fluoride in the treatment of otosclerosis. Sodium fluoride is available as a dietary supplement called Florical (Mericon Industries, Peoria, Illinois). This preparation supplies 8.3 mg. sodium fluoride and 364 mg. calcium carbonate. To be officially approved by the FDA each compound used for medical treatment must be proven to be safe and effective for that particular indication.

Even though sodium fluoride is widely available without a prescription it is considered a "new drug" for the treatment for otosclerosis. To complete both new investigation drug applications would cost millions of dollars. No drug company seems to be interested in making this kind of investment in an inexpensive compound which is not patentable and is already available without a prescription.³

In spite of its lack of official approval by the FDA, there are almost 20 years

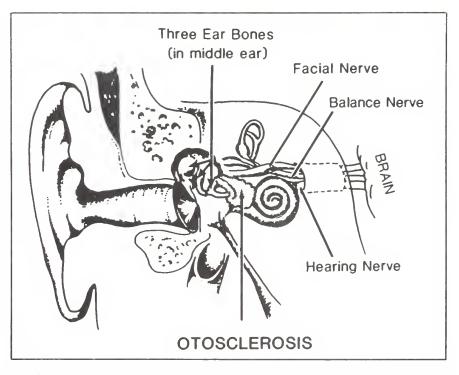


FIGURE 1: In a normal ear, sound waves enter the ear canal, strike the eardrum and vibrate the malleus, incus and stapes. The stapes bone then causes fluid displacement in the inner ear, which excites the nerve endings of the cochlear nerve. The hearing signal then travels along the cochlear nerve to the brain. Otosclerosis typically starts at the anterior edge of the stapes footplate and can cause either conductive or sensorincural hearing loss or both in either ear.

of clinical experience with the use of fluoride in the treatment of otosclerosis. Many thousands of patients have received sodium fluoride treatment in this country and in Europe. Approximately 80% of patients with progressive sensorineural hearing loss from otosclerosis will show stabilization of hearing levels with sodium fluoride treatment.

In one study⁶ histologic evaluation of stapes footplates removed before and after sodium fluoride administration showed reduction of osteoblastic activity in the otosclerotic focus. In three double blind studies no increase in nausea, gastric, or joint problems was noted when compared with placebo treatment.⁷

The Division of Drugs of the American Medical Association holds the opinion that any legally marketed compound may be used by a licensed physician for any purpose for which there is sound scientific rational.

The recommended dose of Florical for progressive hearing loss is two tablets three times a day with meals. The treatment is not recommended in patients who have a history of gastrointestinal ulceration, in patients with renal disease or ealculi, or in patients with allergic reactions to the drug. It should be only cautiously recommended in decreased dosage for women who may become pregnant.

Discussion

Medical treatment of otosclerosis eontinues to be controversial. Surgical techniques are well standardized and results are generally dependable. At present it seems to make sense to identify those individuals who may be at

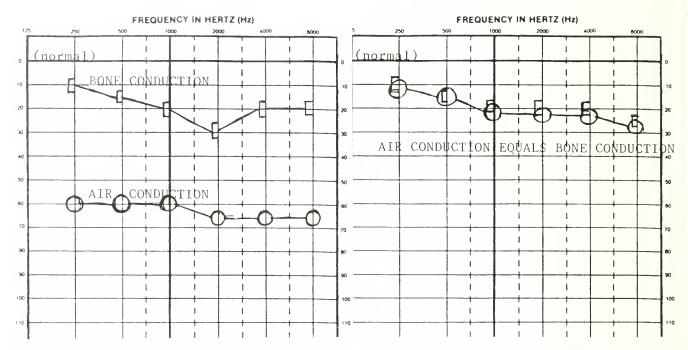


FIGURE 2: Audiogram of the right ear of a patient with a mixed hearing loss from otosclerosis. The otosclerosis has involved the stapes bone, causing stapes fixation and conductive hearing loss. The bone conduction or nerve function is also mildly elevated, showing evidence of cochlear involve-

ment by the otosclerosis (left). Postoperative audiogram (right) shows elimination of conductive hearing loss and improvement of hearing to a serviceable level. Air conduction has improved to the bone conduction level with elimination of the air-bone gap.

high risk for progressive hearing loss from otoselerosis. This would include any unexplained progressive hearing loss of adolescence or early adulthood with a normal tympanic membrane and normal eustachian tube function.

Patients with progressive hereditary hearing loss or progressive sensorineural hearing loss at mid or high frequencies, in absence of other known causes, may be considered for medical treatment. It also would seem reasonable to test family members of patients with surgically confirmed otosclerosis upon reaching the age of maximum risk for development of otosclerosis.

Medical treatment with sodium

fluoride, in my experience and on review of the literature, seems to be quite safe. The evidence to date supports the efficacy of sodium fluoride. Only by early identification and appropriate treatment can we help reduce the progressive hearing loss from otosclerosis.

REFERENCES

- Guild SR: Histologic otosclerosis. Ann Otol Rhinol Laryngol, 53:246-267, 1944.
- 2. Causse JR, $c\bar{t}$ $\bar{d}l$: The enzymatic mechanism of the otospongiotic disease and NaF action on the enzyme balance. Am J Otol, 3(4):297-314, 1982.
- 3. Shambaugh GE Jr: Letters to the editor. Arch Otolaryngol, 108:62, 1982.
- 4. Shambaugh GE Jr, Scott A: Sodium fluoride for arresting otosclerosis:
 Theoretical consideration. Arch
- Otolaryngol, 80:263-270, 1964.
- Shambaugh GE Jr: Otospongiosis: General consideration and non-surgical treatment. In Otolaryngology, Maloney WH (ed), Harper & Row Publishers, Hagerstown, Md, Vol 2, Chap 14, 1976.
- House WP, Linthicum FH Jr: Sodium fluoride and the otosclerotic lesion. Arch Otolaryngol, 100:427-430, 1974.
- 7. Gunby P: Otospongiosis begins to yield its secrets. *JAMA*, 242:1599-1600, 1979.

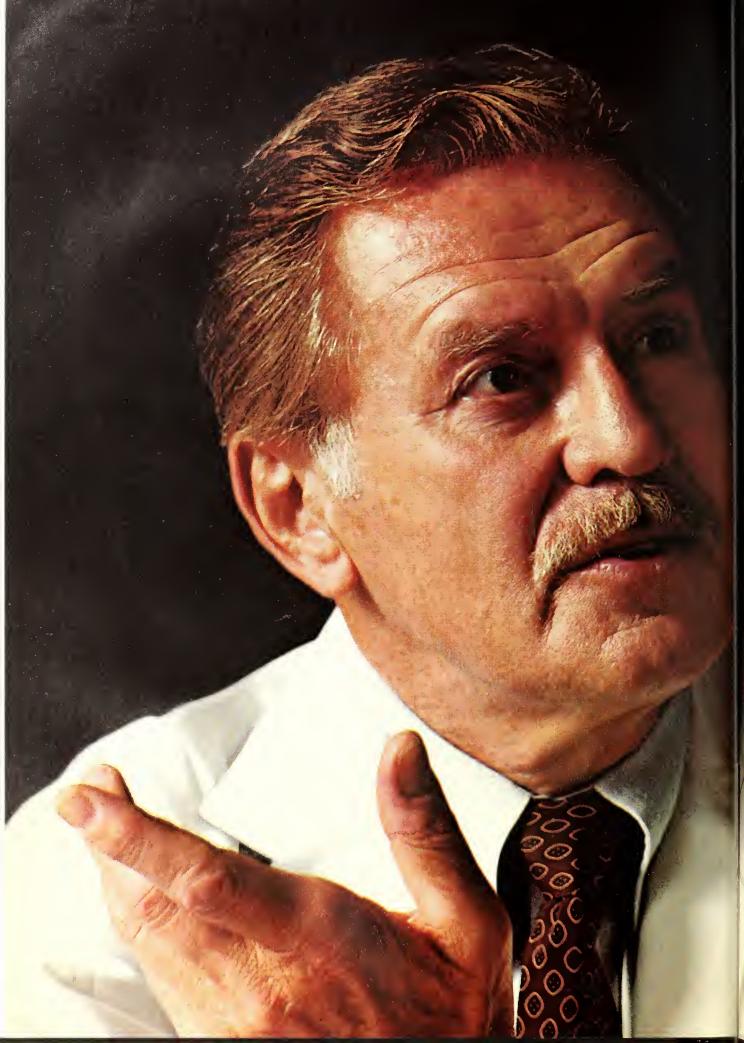
Motrin[®] buprofen, Upjohn 600 mg Tablets



More convenient for your patients.

Upjohn

The Upjohn Company • Kalamazoo, Michigan 49001 USA



"When it comes to cardiovascular medicine, I like to know exactly what my patients are swallowing."

There are doctors who say that generic drugs have a place in their practice—but not necessarily in the treatment of serious or potentially life-threatening disease. And when they consider that the average patient pays only about 45¢ a day for INDERAL (propranolol HCl) Tablets, there's not much left to discuss.

When it's INDERAL Tablets you want for the treatment of hypertension, angina, arrhythmias, or post-MI patients, make sure you specify "Dispense As Written" (DAW), "Do Not Substitute," or whatever is required in your State. That way, you'll know exactly what your patients will get.

Please see next page for brief summary of prescribing information.



"When it comes to cardiovascular medicine, I like to know exactly what my patients are swallowing."



BRIEF SUMMARY (FOR FULL PRESCRIBING INFORMATION, SEE PACKAGE CIRCULAR.)

INDERAL* (propranol/ I hydrochloride) Tablets

CONTRAINDICATIONS

INDERAL is contraindicated in 1) cardiogenic shock 2) sinus bradycardia and greater than first degree block 3) bronchial asthma. 4) congestive heart failure (see WARNINGS) unless the failure is secondary to a fachyarrhythmia treatable with INDERAL

WARNINGS

CARDIAC FAILURE Sympathetic stimulation may be a vital component supporting circulatory function in patients with congestive heart failure, and its inhibition by beta blockade may precipitate more severe failure. Although beta blockers should be avoided in overt conges.

precipitate more severe failure. Although beta blockers should be avoided in overt conges twe heart failure if necessary they can be used with close follow-up in patients with a history of failure who are well compensated and are receiving digitatis and durefice. Beta-adrenergic blocking agents do not abolish the inotropic action of digitatis on heart muscle. IN PATIENTS WITHOUT A HISTORY OF HEART FAILURE continued use of beta blockers can, in some cases lead to cardiac failure. Therefore at the first sign or symptom of heart failure, the patient should be digitalized and/or treated with diurefice, and the response observed closely or INDERAL should be discontinued (gradually it possible).

IN PATIENTS WITH ANGINA PECTORIS there have been reports of exacerbation of IN PATIENTS WITH ANGINA PECTORIS there have been reports of exacerbation of angina and in some cases myocardial infarction following abrupt discontinuance of INDERAL therapy. Therefore, when discontinuance of INDERAL is planned the dosage should be gradually reduced over at least a few weeks and the patient should be cautioned against interruption or cessation of therapy without the physician's advice. If INDERAL therapy is interrupted and exacerbation of angina occurs, it usually is advisable to reinstitute INDERAL therapy and take other measures appropriate for the management of unstable, angina pectoris. Since coronary artery disease may be unrecognized, it may be prudent to follow the above advice in patients considered at ris of having occult atherosclerotic heart disease who are given propranolol for other indications.

Nonallergic Bronchospasm (e.g., chronic bronchitis, emphysema) PATIENTS WITH BRONCHOSPASTIC DISEASES SHOULD IN GENERAL NOT RECEIVE BETA BLOCKERS INDERAL should be administered with caution since it may block bronchodilation produced by endogenous and exogenous catecholamine stimulation of beta receptors MAJOR SURGERY. The necessity or desirability of withdrawal of beta-blocking therapy prior to major surgery is controversial. It should be noted however, that the impaired ability of the heart to respond to reflex adrenergic stimuli may augment the risks of general anesthesia and surgious procedures.

the heart to respond to reflex adrenergic stimuli may augment the risks of general anesthesia and surgical procedures.

INDERAL like other beta blockers is a competitive inhibitor of beta-receptor agonists and its effects in a be reversed by administration of such agents e.g., dobutamine or isopro-terenot. However, such patients may be subject to protracted severe hypotension. Difficulty in starting and maintaining the heartbeat has also been reported with beta blockers. DIABETES AND HYPOGLYCEMIA. Beta-adrenergic blockade may prevent the appearance of certain premonitory signs and symptoms (pulse rate and pressure changes) of acute hypoglycemia in labile insulin-dependent diabetes. In these patients, it may be more difficult to adjust the dosage of insulin. THYROTOXICOSIS Beta blockade may mask certain clinical signs of hyperthyroidism. Therefore abrupt withdrawal of propranolot may be followed by an exacerbation of symptoms if hyperthyroidism including thyroid storm. Propranolot does not distort thyroid function tests.

tests
IN PATIENTS WITH WOLFF-PARKINSON-WHITE SYNDROME, several cases have been IN PATIENTS WITH WOLFF-PARKINSON-WHITE SYNDROME, several cases have been in PATIENTS WITH WOLFF-PARKINSON-WHITE SYNDROME, several cases have been in PATIENTS. reported in which, after propranolol, the tachycardia was replaced by a severe bradycardia requiring a demand pacemaker. In one case this resulted after an initial dose of 5 mg propranolol.

PRECAUTIONS

General Propranolol should be used with caution in patients with impaired hepatic or renal function. INDERAL is not indicated for the treatment of hypertensive emergencies.

Beta-adrenoreceptor blockade can cause reduction of intraocular pressure. Patients should be told that INDERAL (propranoiol hydrochloride) may intertere with the glaucoma screening test. Windrawal may lead to a return of increased intraocular pressure. Clinical Laboratory Tests. Elevated blood ureal levels in patients with severe heart disease, elevated serum transaminase, alkaline phosphatase. lactate dehydrogenase. DRUG INTERACTIONS. Patients receiving catecholamine-depleting drugs such as reserpine should be closely observed if INDERAL is administered. The added catecholamine-blocking action may produce an excessive reduction of resting sympathetic nervous activity which may result in hypotopicing marked brackwardia, vetting, sympathetic nervous activity.

blocking action may produce an excessive reduction of resting sympathetic nervous activity which may result in hypotension, marked bradycardia vertigo, syncopal attacks, or orthostatic hypotension.

Carcinogenesis: Mutagenesis, Impairment of Fertility, Long-term studies in animals have been conducted to evaluate toxic effects and carcinogenic potential. In 18-month studies in both ratis and mince, employing doses up to 150 mg/kg/day, there was no evidence of significant drug-induced toxicity. There were no drug-related fumorigenic effects at any of the dosage levels. Reproductive studies in animals did not show any impairment of fertility that was attributable to the drug.

age levels. Reproductive studies in animals did not show any impairment of terrility that was attributable to the drug. Pregnancy Category C. INDERAL has been shown to be embryotoxic in animal studies at doses about 10 times greater than the maximum recommended human dose. There are no adequate and welf-controlled studies in pregnant women. INDERAL should be used during pregnancy only if the potential benefit justifies the potential risk to the fetus. Nursing Mothers. INDERAL is excreted in human milk. Caution should be exercised when INDERAL is administered to a nursing woman. Pediatric Use. Safety and effectiveness in children have not been established.

ADVERSE REACTIONS

Most adverse effects have been mild and transient and have rarely required the withdrawal c

therapy
Cardiovascular bradycardia, congestive heart failure, intensitication of AV block, hypoten
Cardiovascular bradycardia, congestive heart failure, intensitication of AV block, hypoten Raynaud type
Central Nervous System Lightheadedness, mental depression manifested by insomna

Central Nervous System: Lightheadedness, mental depression manifested by insomnia, lassitude, weakness: fatigue, reversible mental depression progressing to catatonia, visual disturbances, hallucinations, an acute reversible syndrome characterized by disorientation for time and place, short-term memory loss: emotional lability. Slightly clouded sensorium, and decreased performance on neuropsychometrics. Gastrointestinal nausea, vomiting: epigastric distress, abdominal cramping diarrhea. constipation, mesenteric arterial thrombosis, ischemic colitis. Allergic: pharyngitis and agranulocytosis, erythematous rash, fever combined with aching and sore throat laryngospasm and respiratory distress.

Respiratory: bronchospasm.

Hematologica: garanulocytosis, porthrombocytopenic purgura, thrombocytopenic.

Hematologic agranulocytosis, nonthrombocytopenic purpura, thrombocytopenic purpura Auto-Immune In extremely rare instances, systemic lupus erythematosus has been

reported Miscellaneous alopecia, LE-like reactions, psoriasitorm rashes, dry eyes, male impotence, and Peyronie's disease have been reported rarely. Oculomucocutaneous reactions involving the skin, serous membranes and conjunctivae reported for a beta blocker (practolol) have not been associated with propranolol.

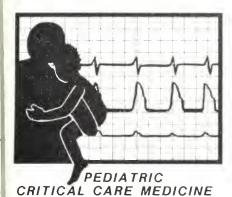
*The appearance of INDERAL tablets is a registered trademark of Ayerst Laboratories.

Copyright © 1985 Ayerst Laboratories

9429/185



Abdominal Trauma in Children



Abdominal Trauma
Constitutes
Nearly 15% of
Serious Childhood
Injuries. . .

JOSHUA M. CARESKEY, M.D. Indianapolis

HYSICIANS WHO CARE FOR children are aware that accidental injury is the chief cause of death from nine months to 16 years; less recognized is that traumatic deaths in the pediatric age group outnumber those from all other causes combined.1 For every child lost to cancer, nearly five are killed by accidents. Although infants under one year are less susceptible to traumatic deaths, nearly onethird of the approximately 6,000 annual deaths in this age group is caused by automobile accidents, suffocation and poisoning. It is profoundly ironic and sadly tragic that the preventive steps that could alter these statistics go largely unheeded in our industrialized society.

Abdominal trauma, with or without discrete intraperitoneal injuries, constitutes nearly 15% of serious childhood accidents, second only to craniocerebral and soft-tissue injury. Abdominal trauma in childhood is seasonal, with increases during the first days of spring and when school is closed for summer vacation. Epidemiologic differences by age and socioeconomic status exist as well. Injuries from child abuse are most common among toddlers. As the child becomes older, he is more vulnerable to being struck by automobiles or to falling from bicycles. Older children are more likely to sustain injury (particularly to the spleen) from sportsrelated activities, while teenagers constitute an increasing proportion of those who inflict intraabdominal injuries on themselves or others with dangerous weapons, including cars and motorcycles. Falls onto grass or concrete from high-rise apartment dwellings are a significant cause of morbid ity (though surprisingly not mortality) in populated urban centers.² Football, soccer, and hockey-related injuries are most common in suburban environments although a decreased incidence of injuries has been documented when such play is supervised.

Etiology

Most significant abdominal injuries in children are the result of blunt trauma. Regardless of accident location, whether urban, suburban, or rural, the automobile is the most common cause of such injuries in childhood, accounting for at least 50% of such accidents. Children are four times more likely to be injured as pedestrians than as occupants in automobile-associated accidents, except for children less than five years where the reverse is true. Another one-third of abdominal injuries results from falls from heights or against a fixed object, while children injured during play represent about 10% of those with abdominal trauma. The frequent lack of significant injury among children who fall from second and third story windows onto concrete is a continual source of amazement; nevertheless, a high index of suspicion for intraperitoneal injury is mandatory. Blunt injuries can present with delayed manifestations of serious intraabdominal injury (e.g., subcapsular hematoma of the spleen or liver, retroperitoneal duodenal perforation), so a history of significant contact must arouse clinical suspicion even when initial assessment and vital signs are unremarkable.

Intraabdominal injury from parental assault is more common than once believed. Child battering must be considered when historical accounts,

From the Dept. of Pediatric Surgery, Methodist Hospital of Indiana, Inc., 1604 N. Capitol Ave., Suite 444, Indianapolis, Ind. 46202. physical findings, and laboratory or xray results do not conform to more common entities seen in the pediatric abdomen. A history of trauma is elicited in up to 75% of cases but rarely will the true cause be revealed. Additional circumstances should alert the physician to the possibility of abuse: 1) unexplained injury; 2) significant delay in seeking medical attention; 3) injuries in various stages of healing; 4) claim by the caretakers of self-inflicted injuries, or injuries caused by others; 5) history of repeated trauma, especially if cared for in different treatment facilities; 6) the child admits to physical abuse by caretakers; 7) inappropriately passive child; 8) discrepancy between history offered and physical findings.

Finally, a small percentage of children with major intraabdominal injury will have no discernible etiology, lacking either a clear recollection of their accident or a witness to substantiate the trauma. Such children may be confused with victims of toxic ingestions, metabolic derangements (e.g., sickle cell crisis, diabetic ketoacidosis), or central nervous system impairment. Conditions that mimic intraabdominal injury can usually be ruled in or out by clinical, laboratory, and radiographic findings although occasionally laparotomy is required.

Diagnosis and Management

Initial management begins with a detailed history. In a trauma setting this frequently parallels physical examination and definitive management. At least half of patients with blunt abdominal trauma will have concomitant injury to the central nervous system, chest, genitourinary system, or to an extremity. Extraabdominal injuries overlooked initially can appear later and complicate operative management.

Initially, a multiply injured patient with life-threatening lesions is assumed to exist. Priorities are not those related to the abdomen, but rather to injuries incompatible—with—life:—eardio-respiratory impairment due to severe

maxillofacial, neck, and intrathoracic injuries, cervical spine fracturedislocation, and external hemorrhage. Skills to manage these situations must be second nature to those who routinely eare for the seriously traumatized child, even if transfer to another facility is likely.

In general, because of the possibility of major intraabdominal venous injury such as retrohepatic vena caval disruption, vascular access should be obtained in the upper extremities when possible. Patients who arrive with pneumatic, anti-shock trousers in place and inflated make lower extremity intravenous (IV) access impractical. If percutaneous placement of a large bore catheter is impossible due to hypovolemia and venous constriction, antecubital cutdown is preferable to subclavian catheterization in the small child as the latter is fraught with complications in the emergency setting. Blood samples for laboratory evaluation, including blood typing and cross match, can be taken at the time of line placement.

In theory, fluid resuscitation is guided by pre-existing losses, maintenance requirements, and ongoing losses. In practice, blood pressure and heart rate changes occur only after a 20% depletion of circulating blood volume. Hypovolemia should be assumed in every child with significant abdominal trauma and a rapid fluid bolus of 20 ec/kg estimated body weight (Ringer's lactate solution is preferred) given as soon as IV access is established. Since this may represent a life-saving repletion of fluid, associated injuries which normally require fluid restriction (pulmonary contusion or brain swelling) should in no way obviate initial bolus therapy and restoration of normal circulatory hemodynamics. If hypotension, pallor, poor nailbed capillary refill, and tachycardia persist, a second 20 cc/kg bolus is delivered. Failure to respond requires transfusion therapy, generally with uncrossmatched blood, either type-specific or O-negative. It is rare

that a child must be rushed directly to the operating room for management of abdominal trauma. When such an injury is present (penetrating injury to a major vessel or liver fracture with disruption of hepatic veins), shock and massive abdominal distension will ensue. Rapid infusion of fluid and blood is essential to prevent exsanguination. Prior to surgery, the operating room must have available at least eight units of blood, a heating blanket to combat inevitable hypothermia, and means for autotransfusion of blood from suction bottles. When the abdomen is opened, the tamponade effect from abdominal distension is released, and the resulting hemorrhage may be torrential.

Once stabilized from a hemodynamic and respiratory standpoint, examination of the abdomen is undertaken. At this point, while examining a frightened, uncooperative child, the physician is taxed to the utmost. Nearly infinite patience, gentleness, and a systematic examination proceeding from painless and innocuous to invasive and uncomfortable maneuvers yields the most satisfactory results. Occasionally, sedation may be required. Secobarbitol, subcutaneously in a dosage of 4 mg/kg, usually relaxes the child without blunting abdominal tenderness and rigidity. Observation is made for bruises, palpable rib fractures, tire tracks, and penetrating injuries. Areas of crepitance and pain are noted as a baseline for future comparison. The lower chest and pelvis are compressed, noting tenderness and instability. Initial examination of the young patient may be misleading in either direction. A child with splenic or hepatic rupture may have a soft, non-tender abdomen; another patient, essentially uninjured but scared or crying, may be thought to have a very tense, tender abdominal exam. In either case, or when initial findings are equivocal, frequent, periodic examinations, preferably by the same physician, are mandatory.

The presentation of most children with abdominal trauma permits addi-

tional studies following evaluation and resuscitation. Several procedures should be considered routine manage ment. It is advisable to pass a nasogastric tube (exception: suspected injury to the cribriform plate or basilar skull fracture requires orogastric intubation) since the majority of trauma tized children develop an ileus. Crying and swallowing air causes acute gastric dilatation and potential aspiration of a recent meal or gastric acid. A distended abdomen may improve dramatically after gastric decompression. Catheterization of the urinary bladder is routine (exception: blood at the urethral meatus or evidence of pelvic crush injury may suggest urethral injury and require urethrography prior to attempted bladder instrumentation). Hematuria is an indication for intravenous pyelogram and cystogram. Hourly measurement of urine output allows probably the best indicator of blood and fluid repletion therapy. Anti biotics should be considered in most in stances of significant abdominal trauma, especially that from penetrating injury or preoperative pneumoperitoneum from blunt forces. When given, antibiotics are started early, prior to formation of large hematomas and areas of tissue edema. Intravenous gentamiein, 5 mg/kg/day, and ampicillin, 100-150 mg/kg/day, are usually adequate although anaerobic coverage should be provided if hollow viseus rupture is suspected.

Diagnostic studies must be individualized and not approached by rigid adherence to protocol. Radiographs of the chest (supine and upright, when possible), abdomen, and pelvis are appropriate in children not requiring immediate surgery. Preference for emergency computed tomography (CT) versus radionuclide imaging (of the liver and spleen) versus abdominal sonography varies between institutions. Studies suggest that abdominal CT is associated with fewer falsenegative and false-positive results and provides more information than any single diagnostic imaging test generally available. From a practical standpoint, it is simple to include the chest, abdomen, and pelvis in a study following head CT exam in a multiply-injured child. Injuries to the liver, spleen, retroperitoneal organs, and genitourinary tract can be recognized along with the presence or absence of intraperitoneal fluid. Abdominal CT provides a baseline for follow-up examinations in cases of non-operative management of liver and spleen injuries.

abdominal for Indications paracentesis and peritoneal lavage have decreased in recent years because: 1) blood in the peritoneal cavity is no longer an absolute indication for celiotomy, 2) a high level of diagnostic accuracy can be obtained from other, noninvasive techniques, and 3) in conscious patients, much information provided by paracentesis or lavage can be ascertained by careful physical examination. The ideal candidate for an abdominal tap is the un conscious, multiply-traumatized child being readied for emergency neurosurgical intervention (without benefit of CT) in whom a diagnosis of hemoperitoneum would mandate concomitant laparotomy for control of poten tially life-threatening hemorrhage. Peritoneal lavage prior to abdominal CT seanning can make interpretation of intraperitoneal fluid and free air by the latter study difficult if not impossible. Lavage is considered positive if at least one of the following is present: 100,000 rbc/cc lavage fluid; 500 wbc/cc; bile; bacteria on Gram stain.5

With individualization of eare in mind and the availability of such diagnostic modalities as radionuclide scanning, abdominal and renal aortography, and (soon) nuclear magnetic resonance imaging, the physician must keep abreast of trends in the literature and within his or her institution, and of preferences among radiology colleagues. Technological adjuncts remain just that; they may confirm or rule out suspected lesions, occasionally demonstrate unsuspected ones, but in

no case eliminate the need to carefully and repeatedly examine the child. Our ability to touch these little patients and, in some cases, talk with them, re mains the best guide for precise diagnosis and effective treatment.

Besides the kidney (if one considers microscopic hematuria a reliable manifestation of renal injury), the spleen is the most commonly injured solid organ from blunt trauma to the abdomen. A history of trauma to the left upper quadrant or left lower chest, pallor, and/or left upper quadrant pain with (20%) or without (80%) rib fractures suggests the diagnosis. Preservation of the spleen and its reticuloendothelial function has been successfully pursued during the past decade. Prior to that time, splenectomy was the standard response to a ruptured spleen. Since the post-splenectomy state places a patient at roughly 60 times increased risk of sepsis, with mortality rates approaching 50%, methods to repair the spleen have been advocated. These include compression sutures, topical hemostatic agents, omental buttresses, or partial splenectomy. Operation is indicated for persistent instability of vital signs, continued transfusion requirements, or evidence of other serious intraabdominal injury. Otherwise, an injured spleen may be treated nonoperatively and followed to healing provided intensive care unit personnel accustomed to hemodynamic and respiratory monitoring of the seriously ill pediatric patient are available on an around the clock basis. Nonoperative therapy of the badly injured spleen must be considered aggressive treatment and exploration conservative.6

The leading cause of death in pediatric abdominal trauma is bleeding from hepatic injuries. The liver is a large, highly vascular organ confined by a paper-thin capsule. The veins draining the liver are short, nearly inaccessible, and empty directly into the inferior vena eava, all of which make treating injuries to this area difficult. When nonoperative management of

hepatic trauma is not feasible, surgical options include drainage or suture of minor lacerations, debridement or resection for more extensive parenchymal destruction, or segment ectomy or lobectomy for avulsion of a major portion of the liver. In cases of massive, uncontrolled hemorrhage, the surgeon must be prepared to extend the incision up the sternum or into the right chest for purposes of vena cava bypass to control hepatic vein bleeding. Injuries of the extra-hepatic bile ducts may require cholecystectomy, direct bile duct repair, and/or an intestinal drainage procedure.

As opposed to adults, blunt trauma is the most common cause of pancreatitis in childhood. Lying in the posterior epigastrium, it crosses over the first and second lumbar vertebral bodies. Injury is a result of gland compression between the spine and a list, handlebar, seatbelt, etc. The majority of such blows result in contusion of the gland, but complete transection may occur in up to 20% of cases. Mild to severe epigastric tenderness, back pain, and hyperamylasemia are the clinical hallmarks. Pain and other findings may subside in 1-3 days or, in more severe cases, pain does not subside, hyperamylasemia recurs with attempts to feed and, weeks to months later, a pancreatic pseudocyst results. In the most extreme cases associated with glandular and duct transection, severe pain is immediate, tenderness is diffuse, and distension and paralytic ileus constitute the most striking clinical findings. These patients require immediate exploration for repair of pan creatic and associated (e.g., duodenal) injuries.

Most children with traumatic pancreatitis respond to bed rest, nasogastric suction, and intravenous fluids. Periodic upper abdominal imaging monitors resolution of the edematous pancreas or progression to pseudocyst formation. Surgical procedures are dictated by operative findings. Contused glands are best treated by wide, dependent drainage. Superficial lacerations may be closed but ductal transections, depending on their location, may require pancreatic resection or drainage into an intestinal conduit. Whipple resections (pancreaticoduodenectomy) are reserved for those children who have major, nonreparable damage to the duodenum and extensive injury to the head or neck of the pancreas. Postoperative complications following surgery for traumatic pancreatitis are not rare and include pancreatic fistula, retroperitoneal abscess, and pseudoeyst formation.

Traumatic rupture of the stomach is rare in children, occurring most commonly when trauma shortly follows ingestion of a large meal. More common sites of gastrointestinal perforation are the duodenum where it crosses the vertebral column, the proximal jejunum, and terminal ileum. A pneumoperitoneum (usually absent with retroperitoneal duodenal perforation) or evidence of peritonitis are indications for exploration. Duodenal rupture may require a contrast study to document retroperitoneal extravasation of dye. Decisions to close injuries primarily or perform sleeve resection are made after the entire abdomen has been explored and the extent of associated injuries verified. In general, small bowel injuries can be safely treated by suture repair or resection and primary anastomosis; colon injuries, generally a result of penetrating trauma, should be exteriorized.

Summary

There are both gratifying and depressing aspects to childhood abdominal trauma. The amazing recuperative and healing powers of children, their tolerance of major surgical repairs, and the scarcity of thrombotic and cerebrovascular complications all contribute to a usually satisfactory conclusion when care is individualized and administered by a multidisciplinary team. On the discouraging side, there is an unacceptable number of serious injuries and deaths of our children, largely from overt acts by, or negligence on the part of, adults. Sobering, also, is the fact that prevention, the best form of treatment, is possible in 100% of cases.

REFERENCES

- Sibert JR, Maddocks GB, Brown BM: Childhood accidents: An endemic of epidemic proportions. Arch Dis Child, 56:225-227, 1981.
- Barlow B, Niemirska M, Gandhi RP, Leblane W: Ten years of experience with falls from a height in children. J Pediatr Surg, 18:509-511, 1983.
- 3. Kaufman RA, Towbin R, Babcock DS, dal: Upper abdominal trauma in children: Imaging evaluation. AJR, 142:449-460, 1984
- Karp MP, Cooney DR, Berger PE, Kuhn JP, Jewett TC: The role of computed tomography in the evaluation of blunt abdominal trauma in children. J Pediatr Surg, 16:316-323, 1981.
- DuPriest RW, Rodriguez A, Shatney CH: Peritoneal lavage in children and adolescents with blunt abdominal trauma. Am Surg, 48:460-462, 1982.
- Wesson DE, Filler RM, Ein SH, et al: Ruptured spleen – When to operate? J Pediatr Surg, 16:324-326, 1981.
- Grisoni ER, Gauderer MWL, Ferron J, Izant RJ: Nonoperative management of liver injuries following blunt abdominal trauma in children. J Pediatr Surg, 19:515-518, 1984.

FOR MEDICAL PROFESSIONAL LIABILITY COVERAGE, THE ISMA STRONGLY RECOMMENDS PHYSICIANS INSURANCE COMPANY OF INDIANA

INSURANCE COMPANY OF INDIANA. Several companies are anxious to provide most Indiana physicians with medical professional liability insurance coverage. *Only one* has received the formal endorsement, support, and sponsorship of the Indiana State Medical Association. That company is PICI, Physicians Insurance Company of Indiana.

Why PICI?

Because PICI is committed to providing Indiana physicians with the best possible coverage at the lowest possible rates throughout their medical careers. Indiana physicians dominate the company's board of directors and serve on budget, claims and underwriting committees. PICI is a publicly held stock company, and provides annual as well as periodic interim financial reports.

With PICI, you know what's happening to your premium dollars. You will receive information about claims experience and trends. You are guaranteed input on company activities, through your physician members of the company's board and its committees. You are part of the company.

Through PICl, you also receive competitively priced auto, homeowners, office protection and personal umbrella coverages, designed and offered with the same long term commitment.

Compare all that PICI offers with what you will obtain from other sources of medical professional liability and other essential insurance coverages. We think you'll agree that the ISMA has endorsed the best.

The Accountable Company . . .



PHYSICIANS INSURANCE COMPANY OF INDIANA

3901 West 86th Street Suite 350 P.O. Box 689059 Indianapolis, Indiana 46268 (317) 872-3046 or toll free in Indiana (800) 732-1313

Kissing Balloon Therapy for Leriche Syndrome

ALAN T. MARTY, M.D.
ROBERT PENKAVA, M.D.
DANIEL WHITEHEAD, M.D.
CHARLES HACHMEISTER, M.D.
Evansville

S THE GRUENTZIG angioplasty technique grows upon the gaze of the world with expansive energy, many patients are being lured hither and thither by the ignis fatuus of their hopes to avoid surgery. Indeed, vascular surgery has heretofore been the only effective therapy for severely symptomatic patients suffering from the Leriche syndrome. In some patients with this problem, particularly middle-aged women, the atherosclero sis is well localized to the distal aortic bifurcation. Recently we successfully treated such a patient by employing simultaneous inflation of two "kissing" balloon catheters placed side by side in the distal aorta.

Case History

This 46 year old white female housewife entered with the chief complaint of increasing leg fatigue with exercise and sharp bilateral hip pain with less than one block of walking. She had smoked at least one pack of cigarettes for over 20 years, and for the last five

years had high blood pressure, currently treated with 100 mgs. of Lo-Pressor daily plus Dyazide. She had had a hysterectomy in the past. Her mother had had high blood pressure and her brothers exhibited coronary disease; otherwise, past history and review of systems were unremarkable. Physical examination demonstrated almost imperceptible femoral pulses with barely palpable posterior tibial pulses bilaterally.

Doppler examination demonstrated an arm blood pressure of 170 systolic with a posterior tibial blood pressure of 120 on the right and 90 on the left, dorsalis pedis on the right was 110 and 90 on the left. The femoral tracings on the Doppler signals were grossly abnormal: Both displayed a slow upstroke and a tapering downstroke with no reversed component. The Doppler wave forms of the ankle arteries were tapered off on the downstroke and also had no reversed component. Laboratory examination disclosed a triglyceride of 206 with normal being 60 to 160, cholesterol was 209 with the normal being 150 to 250.

An arteriogram performed through a 5 French pigtail catheter placed percutaneously through the right femoral artery and advanced to the level of L4 using a digital intra-aortic DSA technique showed that the distal aorta was strikingly stenotic in its distal 3 millimeters in diameter bilaterally. The iliac arteries, profundus, and superficial femoral arteries as well as the popliteal arteries appeared normal.

Two 6-French Gruentzig balloon catheters were simultaneously placed through the origins of the internal iliac arteries and inflated. Dilation of the distal aorta and proximal iliae arteries was accomplished using 4 atm inflation pressure. Subsequent intra-aortic DSA images confirmed satisfactory early post-angioplasty appearance.

The next day Doppler examination showed an arm blood pressure of 138, posterior tibial blood pressure of 138 on the right and 130 on the left, and a dorsalis pedis blood pressure of 145 on the right and 124 on the left. The patient was stressed on a treadmill at 1.5 mph at a 12% grade for $4\frac{1}{2}$ minutes. Blood pressure in the right arm rose to 170, while that of the posterior tibial on the right side was 154, and 120 on the left. This study confirmed improved functional results after the angioplasty. Similar results were obtained six months later. Doppler pulse wave forms at the ankles likewise improved markedly.

Discussion

Leriche syndrome due to a localized atheroselerotic plaque in the distal aortic bifurcation presents with bilateral buttock, thigh, or ealf elaudication in middle-aged women.1,2 Most of them have smoked at least 20 cigarettes per day for 20 years or more. In addition, the women are generally of short stature averaging about 5'1" and weighing about 125 to 150 pounds.2 Arteriographic findings are typical, with disease apparently located exclusively at the aortic bifurcation. Often such patients have abnormal lipoprotein patterns of the type II-A.² In the past, surgery was the only treatment that could be offered to such patients. The introduction of the Gruentzig balloon and using the double simultaneous "kissing" balloon angioplastie technique has been a recent advance, and appears to have con-

Correspondence: Alan T. Marty, M.D., Columbia Physicians Center, Suite 350, Evansville, Ind. 17710.



FIGURE 1: Aortogram showing localized stenosis of abdominal aortic bifurcation.



FIGURE 2: X-ray demonstrating simultaneous kissing balloon inflation technique.

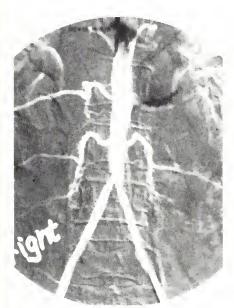


FIGURE 3: Immediate post-angioplasty aortogram showing the extent of dilatation achieved.

trolled the symptoms and improved the leg blood pressures as determined by the Doppler in this patient.

Others have also treated patients with focal abdominal aortic stenosis by transluminal angioplasty.^{3,4} Kumpe⁵ has reported a three balloon catheter angioplasty technique. Supposedly this *ménage a trois* approach may be more successful than the double kissing balloon technique because three balloons more closely approximate the circular contour of the aorta. The long-term patency results of either angioplasty technique have not been established. Indeed in a series of six eases studied by Heeney *et al.*, suboptimal results occurred in two patients.³

REFERENCES

- Greenhalgh MA: Small aorta syndrome. In Surgery of the Aorta and Hs Body Branches, Bergan JJ and Yao JST (eds). Grune and Stratton, New York, pp 183-190, 1979.
- Constantine MJ, Smith RB III, Perdue GD: Segmental aortic occlusion: An unusual lesion found in menopausal women. Arch Surg, 114:317-318, 1979.
- 3. Heeney D, et al: Transluminal angioplasty of the abdominal aorta. Radiology, 148:81-83, 1983.
- Grollman JH Jr, Del Vicaro M, Mittal AK: Percutaneous transluminal abdominal aortic angioplasty. AJR, 134:1053-1054, 1980.
- Kumpe DA: Percutaneous dilatation of abdominal aortic stenosis: Three balloon catheter technique. Radiology, 141:536-538, 1981.



If you recognize Tad's father, you'll recognize the name of one of the largest life insurance companies in America.

Lincoln. It's a name you'll remember.

Benefits available to members of the Indiana State Medical Association and their employees through expanded ISMA group sponsored Lincoln National Life health insurance coverage:

MEDICAL PLAN 1

• 365 Days of Inpatient Hospital Care

100% payment semi-private or hospital ward room including the cost of blood

• 365 Days In-Hospital Medical Care

Reasonable and Customary allowances for surgery, maternity, general anesthesia, medical visits, and radiation therapy

\$500 Supplemental Accident Unlimited Major Medical Benefits

MEDICAL PLAN 2

• Comprehensive Major Medical expense protection - \$500 Calendar Year Deductible

Unlimited Maximum Benefits

MEDICAL PLAN 3

Comprehensive Major Medical expense protection = \$250 Calendar Year Deductible
 Unlimited Maximum Benefits

MEDICAL PLAN 4

 Low cost comprehensive Major Medical expense protection \$2,000 Calendar Year Deductible

Unlimited Maximum Benefits

NEW DENTAL PLAN

 Reasonable and Customary allowances for necessary care and treatment for dental health

\$1,500 Maximum Dental Benefit per person in a Calendar Year

The Lincoln National Life Insurance Company is most pleased to be underwriting the Group Medical and Dental Programs for the Indiana State Medical Association. Your benefit programs have been designed to provide the highest quality coverage and service at the lowest possible cost. A special claim paying unit has been established in our Indianapolis Group Benefits and Service Office to handle only the ISMA program. Should you have questions or problems, you may speak directly to your claim processor at 317-846-6211/800-692-6014. We look forward to serving your association and encourage your review of the programs and services being provided.

For more information call or write:

James D. Townsend or Earl W. Williams Professional Account Representatives 8900 Keystone Crossing, Suite 500 Indianapolis, Indiana 46240 (317) 846-7502 or (317) 844-3119 1-800-428-7105 Toll Free Outside Indiana

Tom Martens Director, Health Insurance Administration Indiana State Medical Association 3935 North Meridian Street Indianapolis, Indiana 46208 (317) 926-4424 1-800-382-1721



The Lincoln National Life Insteamer Company Fort Wayne, Indiana

A member of Lincoln National Corporation

BALANCED CALCIUM CHANNEL BLOCKADE!



Low incidence of side effects

CARDIZEM® (diltiazem HCl) produces an incidence of adverse reactions not greater than that reported with placebo therapy, thus contributing to the patient's sense of well-being.

*Cardizem is indicated in the treatment of angina pectoris due to coronary artery spasm and in the management of chronic stable angina (classic effort-associated angina) in patients who cannot tolerate therapy with beta-blockers and/or nitrates or who remain symptomatic despite adequate doses of these agents.

References

- Strauss WE, McIntyre KM, Parisi AF, et al: Safety and efficacy
 of diltiazem hydrochloride for the treatment of stable angina
 pectoris: Report of a cooperative clinical trial. <u>Am J Cardiol</u>
 49:560-566, 1982.
- Pool PE, Seagren SC, Bonanno JA, et al: The treatment of exerciseinducible chronic stable angina with diltiazem: Effect on treadmill exercise. Chest 78 (July suppl):234-238, 1980.

Reduces angina attack frequency*

42% to 46% decrease reported in multicenter study.

Increases exercise tolerance*

In Bruce exercise test, control patients averaged 8.0 minutes to onset of pain; Cardizem patients averaged 9.8 minutes (P < .005).

CARDIZEM

(diltiazem HCl)

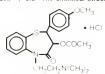
THE BALANCED
CALCIUM CHANNEL BLOCKER

PROFESSIONAL USE INFORMATION



DESCRIPTION

CARDIZEM* (diltrazem hydrochloride) is a calcium ion influx inhibitor (slow channel blocker or calcium antagonist). Chemically, diltrazem hydrochloride is 1,5-Benzothiazepin-4(5H)one,3-(acetyloxy) -5-[2-(dimethylamino)ethyl]-2,3-dihydro-2-(4-methoxyphenyl)-monohydrochloride,(+)-cis- The chemical structure is



Diltiazem hydrochloride is a white to off-white crystalline powder with a bitter taste. It is soluble in water, methanol, and chloroform. It has a molecular weight of 450.98. Each tablet of CARDIZEM contains either 30 mg or 60 mg diltiazem hydrochloride for oral administration

CLINICAL PHARMACOLOGY

The therapeutic benefits achieved with CARDIZEM are believed to be related to its ability to inhibit the influx of calcium ions during membrane depolarization of cardiac and vascular smooth

Mechanisms of Action. Although precise mechanisms of its antianginal actions are still being delineated, CARDIZEM is believed

antianginal actions are still being defined and, Oznozeth is bonded to act in the following ways

1. Angina Due to Coronary Artery Spasm. CARDIZEM has been shown to be a potent dilator of coronary arteries both epicardial and subendocardial. Spontaneous and ergonovine-induced coronary

onary artery spasm are inhibited by CARDIZEM
2 Exertional Angina CARDIZEM has been shown to produce increases in exercise tolerance, probably due to its ability to reduce myocardial oxygen demand. This is accomplished via reductions in heart rate and systemic blood pressure at submaximal

and maximal exercise work loads.

In animal models, dilitazem interferes with the slow inward depolarizing current in excitable tissue It causes excitation-contraction uncoupling in various myocardial tissues without changes in the configuration of the action potential. Dilitazem produces relaxation of coronary vascular smooth muscle and dilation of both large and small coronary arteries at drug levels which cause little or no negative inotropic effect. The resultant increases in coronary blood flow (epicardial and subendocardial) occur in ischemic and nonischemic models and are accompanied by dose-dependent decreases in systemic blood pressure and decreases in peripheral resistance

Hemodynamic and Electrophysiologic Effects. Like other calcium antagonists, diltiazem decreases sinoatrial and atrioventricular conduction in isolated tissues and has a negative inotropic effect

in isolated preparations. In the intact animal, prolongation of the AH interval can be seen at higher doses. In man, dilutazem prevents spontaneous and ergonovine-provoked coronary artery spasm. It causes a decrease in peripheral vascular. resistance and a modest fall in blood pressure and, in exercise tolerance studies in patients with ischemic heart disease, reduces the heart rate-blood pressure product for any given work load Studies to date, primarily in patients with good ventricular function, have not revealed evidence of a negative inotropic effect, cardiac output, ejection fraction, and left ventricular end diastolic pressure have not been affected. There are as yet lew data on the interaction of dilitazem and beta-blockers. Resting heart rate is usually unchanged or clightly reduced by difference. or slightly reduced by diltiazem
Intravenous diltiazem in doses of 20 mg prolongs AH conduction

time and AV node functional and effective refractory periods approximately 20%. In a study involving single oral doses of 300 mg of CARDIZEM in six normal volunteers, the average maximum PR prolongation was 14% with no instances of greater than first-degree AV block Diltrazem-associated prolongation of the AH interval is not more pronounced in patients with first-degree heart block. In patients with sick sinus syndrome, dillazem significantly prolongs sinus cycle length (up to 50% in some cases). Chronic oral administration of CARDIZEM in doses of up to 240 mg/day has resulted in small increases in PR interval, but has not

mg/day has resulted in small increases in PR interval, but has not usually produced abnormal prolongation. There were, however, three instances of second-degree AV block and one instance of third-degree AV block in a group of 959 chronically treated patients. Pharmacokinetics and Metabolism. Dilitiazem is absorbed from the tablet formulation to about 80% of a reference capsule and is subject to an extensive first-pass effect, giving an absolute bioavailability (compared to intravenous dosing) of about 40%. CARDIZEM undergoes extensive hepatic metabolism in which 2% to 4% of the unchanged drug appears in the urine. In vitro binding studies show CARDIZEM is 70% to 80% bound to plasma proteins. Competitive ligand binding studies have also shown CARDIZEM is not some constitution is not ligand binding studies have also shown CARDIZEM binding is not altered by therapeutic concentrations of digoxin, hydrochlorothiazide, phenylbutazone, proprianolol, salicytic acid, or warfarin. Single oral doses of 30 to 120 mg of CARDIZEM result in detectable plasma. levels within 30 to 60 minutes and peak plasma levels two to three hours after drug administration. The plasma elimination half-life following single or multiple drug administration is approximately 3.5 hours. Desacetyl diltuazem is also present in the plasma at levels of 10% to 20% of the parent drug and is 25% to 50% as potent a coronary vasodilator as diltuazem. Therapeutic blood levels of ARDIZEM appear to high peace of the top 20% of the parent drug and is 25% to 50%. CARDIZEM appear to be in the range of 50 to 200 ng/ml. There is a departure from dose-linearity when single doses above 60 mg are given, a 120-mg dose gave blood levels three times that of the 60-mg dose. There is no information about the effect of renal or hepatic impairment on excretion or metabolism of diltiazem

INDICATIONS AND USAGE

Angina Pectoris Due to Coronary Artery Spasm. CARDIZEM

is indicated in the treatment of angina pectoris due to coronary artery spasm. CARDIZEM has been shown effective in the treatment of spontaneous coronary artery spasm presenting as Prinzmetal's variant angina (resting angina with ST-segment elevation occurring during attacks).

2 Chronic Stable Angina (Classic Effort-Associated Angina).
CARDIZEM is indicated in the management of chronic stable angina CARDIZEM has been effective in controlled trials in reducing angina frequency and increasing exercise tolerance. There are no controlled studies of the effectiveness of the concomituse of diffusion and heta-blockers or of the stable of the

tant use of diltiazem and beta-blockers or of the safety of this combination in patients with impaired ventricular function or conduction abnormalities.

CONTRAINDICATIONS

CARDIZEM is contraindicated in (1) patients with sick sinus syndrome except in the presence of a functioning ventricular pacemaker (2) patients with second- or third-degree AV block except in the presence of a functioning ventricular pacemaker, and (3) patients with hypotension (less than 90 mm Hg systolic).

WARNINGS

- Cardiac Conduction. CARDIZEM prolongs AV node refrac-Cardiac Conduction. CARDIZEM prolongs AV node retractory periods without significantly prolonging sinus node recovery time, except in patients with sick sinus syndrome. This effect may rarely result in abnormally slow heart rates (particularly in patients with sick sinus syndrome) or second-or third-degree AV block (six of 1243 patients for 0 48%). Concomitant use of diltazem with beta-blockers or digitalis may result in additive effects on cardiac conduction. A patient with Prinzmetal's angina developed periods of asystole (2 to 5 seconds) after a single dose of 60 mo of diltiazem.
- single dose of 60 mg of diltiazem.

 Congestive Heart Failure. Although diltiazem has a negative notropic effect in isolated animal tissue preparations, hemodynamic studies in humans with normal ventricular function have not shown a reduction in cardiac index nor consistent negative effects on contractility (dp/dt). Experience with the use of CARDIZEM alone or in combination with beta-blockers in patients with impaired ventricular function is very limited. Caution should

be exercised when using the drug in such patients

3. Hypotension. Decreases in blood pressure associated with CARDIZEM therapy may occasionally result in symptomatic hypotension

Acute Hepatic injury. In rare instances, patients receiving CARDIZEM have exhibited reversible acute hepatic injury as evidenced by moderate to extreme elevations of liver enzymes. (See PRECAUTIONS and ADVERSE REACTIONS.)

PRECAUTIONS

General. CARDfZEM (diltiazem hydrochloride) is extensively metabolized by the liver and excreted by the kidneys and in bile. As with any new drug given over prolonged periods, laboratory parameters should be monitored at regular intervals. The drug should be used with caution in patients with impaired renal or hepatic function. In subacute and chronic dog and rat studies designed to produce toxicity, high doses of diltiazem were associated with hepatic damage. In special subacute hepatic studies, oral doses of 125 mg/kg and higher in rats were associated with histological changes in the liver which were reversible when the drug was discontinued. In dogs, doses of 20 mg/kg were also associated with hepatic changes; however, these changes were reversible with continued dosing. **Drug interaction.** Pharmacologic studies indicate that there

may be additive effects in prolonging AV conduction when using beta-blockers or digitalis concomitantly with CARDIZEM (See WARNINGS

Controlled and uncontrolled domestic studies suggest that con-comitant use of CARDIZEM and beta-blockers or digitalis is usually well tolerated. Available data are not sufficient, however, to predict the effects of concomitant treatment, particularly in patients with left ventricular dysfunction or cardiac conduction abnormalities. In healthy volunteers, diltiazem has been shown to increase serum digoxin levels up to 20%

Carcingenesis, Mutagenesis, Impairment of Fertility. A 24-month study in rats and a 21-month study in mice showed no evidence of carcinogenicity There was also no mutagenic response in in vitro bacterial tests. No intrinsic effect on fertility was observed

Pregnancy. Category C Reproduction studies have been con ducted in mice, rats, and rabbits. Administration of doses ranging from five to ten times greater (on a mg/kg basis) than the daily recommended therapeutic dose has resulted in embryo and fetal lethality. These doses, in some studies, have been reported to cause skeletal abnormalities in the perinatal/postnatal studies, there was some reduction in early individual pup weights and survival rates. There was an increased incidence of stillbirths at doses of 20 times the human dose or greater

There are no well-controlled studies in pregnant women, therefore, e CARDIZEM in pregnant women only if the potential benefit

justifies the potential risk to the fetus.

Nursing Mothers. It is not known whether this drug is excreted in human milk. Because many drugs are excreted in human milk, exercise caution when CARDIZEM is administered to a nursing woman if the drug's benefits are thought to outweigh its potential risks in this situation

Pediatric Use. Safety and effectiveness in children have not been establisher

ADVERSE REACTIONS

Serious adverse reactions have been rare in studies carried out to date, but it should be recognized that patients with impaired ventricular function and cardiac conduction abnormalities have usually been excluded

in domestic placebo-controlled trials, the incidence of adverse reactions reported during CARDIZEM therapy was not greater than

that reported during placebo therapy

The following represent occurrences observed in clinical studies which can be at least reasonably associated with the pharmacology of calcium influx inhibition. In many cases, the relationship to CARDIZEM has not been established The most common occurrences, as well as their frequency of presentation, are edema (2.4%), headache (2.1%), nausea (1.9%), dizziness (1.5%), rash (1 asthenia (1.2%), AV block (1.1%), in addition, the following e were reported infrequently (less than 1.9%) with the order of prestion corresponding to the relative frequency of occurrence.

Cardiovasculai Flushing, arrhythmia, hypotension, brac dia, palpitations, congestive heart la

syncope

Paresthesia, nervousness, somnole tremor, insomnia, hallucinations, and amr Nervous System Gastrointestinal Constination, dyspepsia, diarrhea, vom mild elevations of alkaline phosphatase, \$

SGPT, and LDH Dermatologic Pruritus, petechiae, urticaria, photosensi Polyuria, nocturia

The following additional experiences have been noted A patient with Prinzmetal's angina experiencing episodivasospastic angina developed periods of transient asymptoj

vasospastic ariginal developed periods of transient asymptot asystole approximately five hours after receiving a single 6 dose of CARDIZEM The following postmarketing events have been reported quently in patients receiving CARDIZEM erythema multiforme kopenia, and extreme elevations of alkaline phosphatase, \$ SGPT, LDH, and CPK However, a definitive cause and effect bet these events and CARDIZEM therapy is yet to be established

OVERDOSAGE OR EXAGGERATED RESPONSE

Overdosage experience with oral diltiazem has been lin Single oral doses of 300 mg of CARDIZEM have been well tole by healthy volunteers. In the event of overdosage or exagge response, appropriate supportive measures should be employ addition to gastric lavage. The following measures may be considered.

8radycardia Administer atropine (0.60 to 1.0 mg). If is no response to vagal blockade, admir isoproterenol cautiously

High-Degree AV Block Treat as for bradycardia above. Fixed degree AV block should be treated with diac pacing
Administer inotropic agents (isoproter Cardiac Failure

dopamine, or dobutamine) and diuretics Hypotension Vasopressors (eg. dopamine or levarte l

Actual treatment and dosage should depend on the severity (clinical situation and the judgment and experience of the tre

clinical situation and the judgment and experience of the fee physician.

The oral/LD₅₀'s in mice and rats range from 415 to 740 m and from 560 to 810 mg/kg, respectively The intravenous LO, these species were 60 and 38 mg/kg, respectively The oral L1 dogs is considered to be in excess of 50 mg/kg, while lethality seen in monkeys at 360 mg/kg. The toxic dose in man is not know the focusing the considered to be in excess of 800 ng/ml have not been associated to the considered to the considere with toxicity

DOSAGE AND ADMINISTRATION

Exertional Angina Pectoris Due to Atheroscierotic C nary Artery Disease or Angina Pectoris at Rest Due to C nary Artery Spasm. Dosage must be adjusted to each patineeds. Starting with 30 mg four times daily, before meals at bedtime, dosage should be increased gradually (given in dividual patients) optimum response is obtained Although individual patients respond to any dosage level, the average optimum dosage rappears to be 180 to 240 mg/day There are no available data con ing dosage requirements in patients with impaired renal or he function. If the drug must be used in such patients, titration shou carried out with particular caution.

Concomitant Use With Other Antianginal Agents:

1 Sublingual NTG may be taken as required to abort a anginal attacks during CARDIZEM therapy.

- Prophylactic Nitrate Therapy CARDIZEM may be s coadministered with short- and long-acting nitrates, but have been no controlled studies to evaluate the antian effectiveness of this combination.

 3 Beta-biockers. (See WARNINGS and PRECAUTIONS.)

HOW SUPPLIED

Cardizer 30-mg tablets are supplied in bottles of 100 (
0088-1771-47) and in Unit Dose Identification Paks of 100 (
0088-1771-49). Each green tablet is engraved with MARION or side and 1771 engraved on the other CARDIZEM 60-mg sc tablets are supplied in bottles of 100 (NDC 0088-1772-47) and in Dose Identification Paks of 100 (NDC 0088-1772-49). Each yt tablet is engraved with MARION on one side and 1772 on the Capital Articles of 100 (NDC 0088-1772-49). Issued 4/

Another patient benefit product from



Morphologic Assessment of Operatively Excised Native Cardiac Valves

BRUCE F. WALLER, M.D. Indianapolis

ALVULAR HEART DISEASE is a term used to describe cardiac dysfunction produced by structural and/or functional abnormalities of single or multiple cardiac valves. Until recent years, most patients in the Western world with valvular heart disease had valvular lesions believed to be rheumatic in origin. In the last 20 to 30 years, however, it has been learned that rheumatic disease is only one of several causes of valvular heart disease, and depending on which geographic location in the world, it may not be the most common etiology. The recognition of multiple nonrheumatic causes of valve dysfunction has come about by the continued presence of valvular heart disease despite a gradually decreasing frequency of acute rheumatic fever and its cardiac valvular sequelae.

In recent years in the United States, the number of patients seen at necropsy in whom valvular heart disease has followed its natural course has decreased. This decrease is for the most part a consequence of increased surgical therapy (cardiac valve replacement or repair), and is correspondingly associated with a sharp increase in diseased native cardiac valves seen by surgical pathologists. Indeed, at medical centers where extensive

The author is Associate Professor of Pathology and Medicine and Director, Division of Cardiovascular Pathology, Indiana University School of Medicine, University Hospital N-340, 926 W. Michigan St., Indianapolis, Ind. 46223.

Publication supported in part by the Indiana Medical Foundation.

cardiovascular surgery is performed, the study of valvular heart disease is better done in the surgical pathology gross room rather than the autopsy suite

Morphologic evaluation of operatively excised native cardiac valves can lead to an etiologic diagnosis in most instances using a few simple observations and measurements (Table 1). Routine histologic sectioning of every excised cardiac valve will add little, if any, additional etiologic or therapeutic information beyond the morphologic evaluation except in two instances: infective endocarditis and metabolic or inborn errors of metabolism. In operatively excised valves from pa-

TABLE 1

Morphologic Determination of Stenotic and Purely Regurgitant Cardiac Valves

STENOTIC (With or Without Regurgitation)		PURELY REGURGITANT (No Element of Stenosis)
Increased	1. Valve weight	Normal*
Diffuse	2. Fibrous thickening	Diffuse or focal
Heavy	3. Calcific deposits	Minimal (if any)
	4. Valve tissue loss	
	(perforation, in-	
	dentation) or	
	valve tissue	
0	excess	+
	5. Commissural	
+ /0	fusion	0
Rarely	6. Tissue vegetations	+/0
	7. Chordae tendineae	
+	fused	0
0	elongated	+
+	shortened	0/+
0	ruptured	+/0
0	8. Abnormal papil- lary muscles	+
1, 2, or 3	9. Number of semi- lunar cusps	2 or 3
Normal	10. Valve "anular" circumference	Increased

^{*}Increased in floppy valves

⁺ = present, 0 = absent

tients with infective endocarditis it is necessary to examine the valve tissue histologically to determine the presence or absence of organisms and/or inflammatory infiltrates. Similarly, in operatively excised valves from patients with metabolic or enzymatic abnormalities (e.g., Fabry's disease, mucopolysaccharidoses, Whipple's disease, carcinoid syndrome) histologic evaluation of valve tissue will provide diagnostic information in establishing the etiology of valvular heart disease.

Evaluation

Each operatively excised valve should have the following 10 morphologic observations made (Table 1): (1) valve weight; (2) degree (mild severe) of fibrous thickening; (3) degree (mild → severe) and extent (focal or diffuse) of ealcific deposits; (4) valve tissue deficiency (loss) (perforation, indentation or both) or excess; (5) presence or absence and degree (mild - severe) of commissural fusion; (6) vegetation(s); (7) status of the chordae tendineae (fused, elongated, shortened, ruptured); (8) status of attached portions of papillary muscles; (9) number of semilunar cusps; (10) measurement of "anular" cir cumference of atrioventricular valves. Classification of the excised valve into either stenotic versus purely regurgitant categories can usually be made from assessment of these 10 mor phologie factors. Determination of the functional status (stenosis versus purely regurgitant) of the excised valve(s) will then lead to an etiologic differential diagnosis of valvular heart disease (Table 2).

Roberts' has emphasized the usefulness of establishing the type of valve dysfunction as either stenotic or purely regurgitant in determining the etiology of the valve dysfunction. Most stenotic valves have clinical evidence of some element of regurgitation, but by definition purely regurgitant valves have no element of stenosis. Although clinically and therapeutically useful, knowledge of whether a valve is both

TABLE 2

Various Etiologies of Stenotic and Purely Regurgitant Lesions Involving the Four Cardiac Valves

Stenosis (With or Without Regurgitation)	Purely regurgitant (No Element of Stenosis)
itt gar gaaaam)	MITRAL
 Rheumatic Congenital Infective endocarditis 	 Rheumatic Floppy Infective endocarditis Papillary muscle dysfunction
	5. Congenital 6. Carcinoid 7. Idiopathic chordal rupture 8. Trauma
	AORTIC
1. Rheumatic 2. Congenital	1. Rheumatic 2. Infective endocarditis
3. Degenerative	3. Syphilis4. Congenital bicuspid
	5. Ankylosing spondylitis6. Aortic dissection7. Marfan's syndrome8. Trauma
	9. Systemic hypertension TRICUSPID
 Rheumatic Congenital Carcinoid Infective endocarditis 	1. Rheumatic 2. "Functional" (right ventricular systolic hypertension)
	3. Infective endocarditis4. Carcinoid5. Floppy6. Papillary muscle dys-
	function 7. Trauma 8. Ebstein's anomaly PULMONIC
1. Rheumatie	1. Rheumatic
2. Carcinoid 3. Congenital	2. "Functional" (pulmonary arterial systofic hypertension)
	3. Infective endocarditis

4. Congenital

6. Carcinoid

5. Trauma (balfoon-tip

catheter)

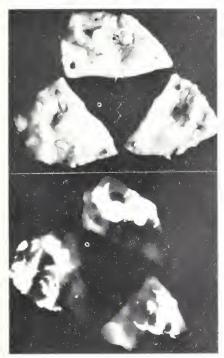


FIGURE 1: Operatively excised 3-cuspid aortic valve from a 74-year-old man with degenerative aortic stenosis. The cusps have diffuse fibrous thickening, heavy calcific deposits (lower) and absent commissural fusion.

stenotic and regurgitant, or which hemodynamic lesion is dominant is less useful from an etiologic standpoint. For stenotic valves, the etiology of the vast majority can be categorized as either rheumatic or congenital (*Table 2*). On the other hand, if the valve dysfunction is purely regurgitant (no element of stenosis), the etiologic possibilities are numerous (*Table 2*).

Structure-Function Correlations

The most common morphologic alteration of an abnormal cardiac valve regardless of etiology is fibrous thickening (Table 1). The degree (mild] severe) and extent (focal or diffuse) of fibrous thickening differs with the functional lesion and etiology. Stenotic valves always have severe and diffuse fibrous thickening and usually moderate to heavy amounts of calcific

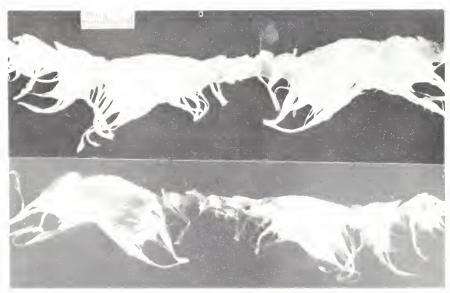


FIGURE 2: Operatively excised purely regurgitant floppy mitral valve. The leaflets and chordae tendineae are free of calcific deposits (lower).

deposits (Fig. 1). Purely regurgitant valves, however, have mild to moderate degrees of focal fibrous thickening (except for purely regurgitant mitral valves of rheumatic etiology, which have diffuse fibrous thickening of the margins of closure). Purely regurgitant valves also have absent or minimal calcific deposits (Fig. 2).

Because of extensive fibrous thickening and calcific deposits, stenotic cardiac valves are heavier than corresponding purely regurgitant valves. Stenotic valves usually have fusion of valve commissures with fibrous tissue and/or calcific deposits, whereas purely regurgitant valves have absent or minimal commissural fusion. Stenotic atrioventricular valves usually have chordae tendineae abnormalities (shortened and fused chordae), normal papillary muscles, and normal anular circumferences. Purely regurgitant valves also have chordae tendineae abnormalities (elongated and/or rup tured), but also may have abnormal papillary muscles and dílated anular circumferences (Table 1).

Minimal, if any, structural valvular alterations may occur in certain pure-

ly regurgitant operatively excised valves. Purely regurgitant aortic valves associated with diseases primarily affecting the ascending aorta (e.g., syphilis, Marfan's syndrome) are morphologically normal or have minimal structural changes. Purely regurgitant tricuspid valves excised from patients with pulmonary hypertension (e.g., secondary to severe mitral stenosis) may also be anatomically normal except for dilated anular circumferences.

Frequency of Various Functional Lesions

Classification of 1,732 stenotic and purely regurgitant operatively excised cardiac valves from 1,414 patients aged 15 to 71 years^{2,3} disclosed that stenotic valve lesions (isolated or combined with other valves) were more frequent (84%) than purely regurgitant lesions (isolated or combined) (16%). The most frequently excised valve was aortic (50%), followed by the mitral valve (48%). Although multiple valve replacements occurred in 22% of 1,414 patients, univalvular replacement was three times more common (78%). Of 315 patients with multivalve replace

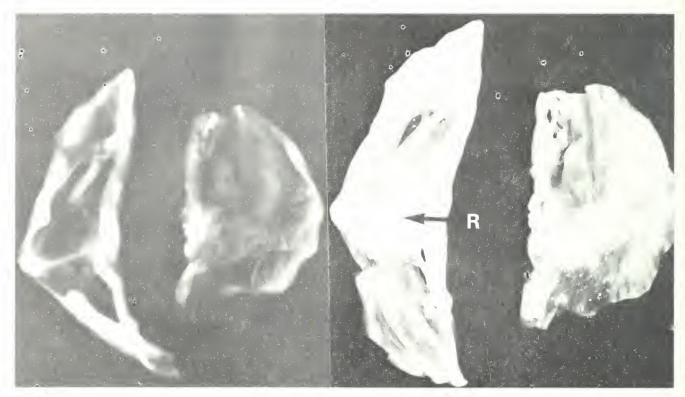


FIGURE 3: Operatively excised purely regurgitant congenitally bicuspid aortic valve (right-left type) with absent calcific deposits. R = raphe (false commissure).

ment, about 85% had concordant multivalvular lesions (all stenotic or all purely regurgitant) and about 15% had discordant lesions (mixed stenotic and purely regurgitant valves).

Occasionally, classification of operatively excised valves into stenotic versus purely regurgitant lesions may require additional information from catheterization data or information on the structural and functional status of a nonoperatively excised mitral valve. For both structural and functional classification, it is absolutely necessary to receive the entire excised valve specimen so that proper morphologic assessment can be made.

Etiology of Operatively Excised Cardiac Valves

Aortic Valve:

Stenotic aortic valves result from three major etiologies: congenital, rheumatic, and degenerative ("senile", "old age", "wear and tear") (Figs. 1, 3-6).

Stenotic aortic valves which are congenital in origin may be unicuspid or bicuspid (Fig. 3). The unicuspid valve may have a dome-shaped orifice ("volcano-like") (acommissural) or may have an eccentric-shaped orifice ("exelamation point") (unicommissural) (Fig. 4). Stenotic unicuspid aortic valves are most commonly excised from patients under age 30 years. Congenitally bicuspid aortic valves are most frequently excised from patients between the ages of 25 and 50 years. Two types of bicuspid aortic valve occur in about equal frequency; anteriorposterior and right-left (Fig. 5). The anterior-posterior type has both coronary artery ostia arising from the anterior cusp, and when present, the anterior cusps always contain the raphe (false commissure). The right-left variety of bicuspid aortic valve (Fig. 3) has a coronary ostium arising from each of the sinuses and when present, the raphe is always located in the right cusp.^{2,3} Stenotic aortic valves of congenital origin usually contain heavy calcific deposits at an earlier age compared to stenotic 3-cuspid aortic valves.

Distinguishing congenital from acquired forms of bicuspid aortic valves usually can be made from simple cuspal measurements. The margin-of-closure distance between each commissure is about equal in normal 3-cuspid aortic valves. In congenitally bicuspid aortic valves the distances between the two commissures is also about equal. Thus, in acquired forms of bicuspid aortic valves, the cusp containing the fused commissure is at least twice as long as the remaining margin of closure distance (Fig. 6).

Stenotic aortic valves of rheumatic origin are characterized by fusion of at least one and usually two or three commissures in the presence of an anatomically abnormal mitral valve (diffuse leaflet or margin of closure fibrous thickening). The classic stenotic

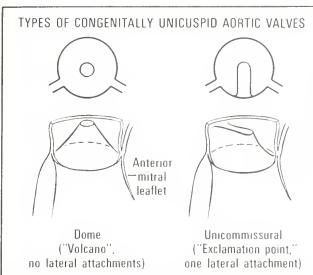


FIGURE 4: Types of congenitally unicuspid aortic valves.

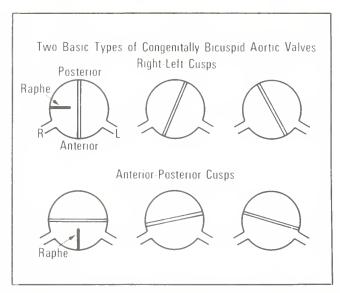


FIGURE 5: Types of congentially bicuspid aortic valves.

aortic valve of rheumatic origin has extensive fusion of all three commissures, producing a central triangular orifice.

The third type of aortic valve stenosis is degenerative. This valve is characterized by the following features: 3-cuspid, absent commissural fusion, and nodular calcific deposits in two or three cusps (Fig. 1). The vast majority of these valves come from patients aged 65 years and older.

Mitral Valve:

The etiology of mitral stenosis is virtually limited to rheumatic disease, accounting for over 95% of operatively excised mitral valves. The rheumatic mitral stenotic valve is characterized by diffuse fibrous thickening of each leaflet with calcific deposits of variable degree, and fusion of both commissures (Fig. 7). Commonly, the chordae tendineae are also thickened, shortened and fused, further contributing to the stenotic orifice. Aschoff nodules may be seen in operatively excised left atrial appendages (22%) or attached portions of papillary muscles (2%) in patients with stenotic mitral valves.4 Calcific deposits have been directly correlated with average end-diastolic pressure gradient across stenotic mitral valves. Generally, as the amount of calcium increases so does the gradient increase.5

Tricuspid Valve:

The etiology of stenotic tricuspid valves is limited to three abnormalities: rheumatic disease, carcinoid disease, and congenital malformations. Rheumatic tricuspid stenosis, in contrast to mitral stenosis, never occurs as an isolated lesion. All patients with rheumatic tricuspid stenosis have associated disease of the mitral valve, and usually dysfunction of the aortic valve. Rheumatic stenosis of the tricuspid valve indicates diffuse fibrous thickening of the leaflets with fusion of two and usually three commissures. The chordae tendineae may be thickened and shortened, but chordal changes are generally not as severe as in rheumatic mitral stenosis. Also in contrast to many stenotic mitral valves, the leaflet thickening rarely is associated with calcific deposits. Carcinoid heart disease may produce stenotic tricuspid valves requiring valve replacement.6 The carcinoid lesion is white fibrous plaque thickening without destruction of the underlying valve architecture. Isolated tricuspid stenosis is usually congenital in origin or results from active infective endocarditis vegetations.

Pulmonie Valve:

Valvular pulmonic stenosis is caused by congenitally malformed valves, rheumatic disease, or carcinoid heart disease.^{2,3} Only a few operatively excised pulmonic valves (isolated or combined with other valves) have been reported in patients aged 20 years and older.^{7,8}

Purely Regurgitant Lesions

In marked contrast to the relatively simple approach to etiologic determination of stenotic valvular lesions, the etiology of purely regurgitant lesions is complex (*Table 2*).

Aortic Valve:

The various etiologies of pure aortic regurgitation can be subgrouped into those conditions primarily affecting the aortic valve cusps (valve), primarily involving the aorta, and those conditions affecting both or neither aorta and valve. Diseases of the aortic valve account for over 75% of these conditions. 9,10 Conditions producing pure aortic regurgitation due to abnormalities of the aortic valve cusps include: infective endocarditis on 3-cuspid or congenitally bicuspid aortic valves, rheumatic, congenitally bicuspid aortic valves without superimposed infective endocarditis, trauma, and floppy aortic valves. The most frequent of these etiologies is rheumatic.

Although the aortic valve is intrinsically normal, pure aortic regurgitation may result from various diseases affecting the ascending aorta. Disease of the ascending aorta accounts for the second most common cause of purely regurgitant aortic valves. Four major disease processes are found in this category: syphilis, Marfan's syndrome, aortitis, and laceration of aorta (dissection, trauma). Occasionally, segments of operatively excised aorta accompanying the excised aortic valve permit histologic evaluation of the wall of aorta. In syphilis, the aortic wall is thickened, whereas, in Marfan's syndrome, the aortic wall is characteristically thin with loss of medial elastic fibers and increased amounts of acid mucopolysaccharide material.

Pure aortic regurgitation secondary to systemic hypertension is classified under the category of disease affecting neither aorta nor valve.11 Ankylosing spondylitis is the only disease process producing pure aortic regurgitation involving both wall of aorta and aortic valve. The disease process in ankylosing spondylitis involves the wall of aorta behind the sinus of Valsalva (like Marfan's syndrome), proximal portion of the tubular segment of aorta (like syphilis), but also extends to involve the basal portion of the aortic valve cusp and onto the ventricular septum and anterior mitral valve leaflet. The aortic valve cusp becomes thickened and shortened.12

Mitral Valve:

The etiology of pure mitral regurgitation may be classified into conditions altering certain components of the mitral valve apparatus: leaflets, chordae tendineae, anulus, papillary muscles, and commissures.^{2,3} The structural alterations of purely regurgitant mitral valves of rheumatic etiology include diffuse fibrous thickening of at least the margins of closure, minimal if any calcific deposits and commissural fusion, and mild thickening of the chordae tendineae. Nonrheumatic etiologies of pure mitral regurgitation

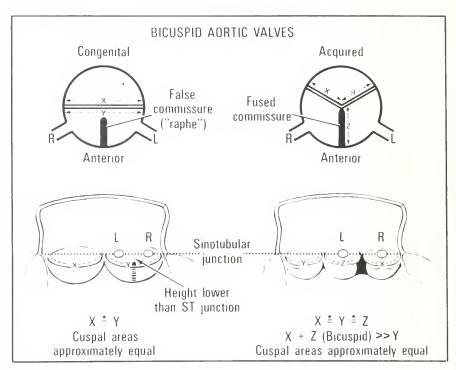


FIGURE 6: Distinguishing congenital from acquired bicuspid aortic valves by cuspal measurements and location of raphe.

account for the vast majority of operatively excised mitral valves in the United States.¹³

Of 97 patients with operatively excised mitral valves for isolated, pure mitral regurgitation, nonrheumatic etiologies accounted for 97%: floppy (62%) (Fig. 2), papillary muscle dysfunction from atherosclerotic coronary disease (30%), and infective endocarditis (5%).13 Morphologic distinction of floppy valves from other conditions of pure mitral regurgitation have included histologie and morphometric criteria. Although increased amounts of acid mucopolysaccharide material are present in many floppy valves. Waller and colleagues¹³ found measurement of anular circumference (cm) and leaflet area (cm²) a sensitive and highly specific method in separating floppy from nonfloppy mitral valves. Anular circumferences greater than 11 cm and leaflet areas greater than 11 cm² were always floppy mitral valves. Operatively excised floppy valves with associated ruptured chordae tendineae also had increased leaflet areas, but only a mild increase in anular circumference (greater than 10 cm but usually less than 11.5 cm). The increased leaflet area in floppy valves is the morphologic expression of leaflet "hooding," "redundancy" or "prolapse."

Papillary muscle dysfunction from many conditions may produce severe acute or chronic mitral regurgitation requiring mitral valve replacement. One of the most common etiologies is atherosclerotic coronary disease with scarred papillary muscles.¹³ The operatively excised mitral valve leaflets, anular circumference, commissures and chordae tendineae are normal, but either or both of the attached portions of left ventricular papillary muscles are scarred and usually atrophied.

Active or healed infective endocarditis causes pure mitral regurgitation by destroying leaflet tissue (perforation, indentation), rupture of chordae tendineae, vegetations causing abnormal leaflet coaptation, or various com-

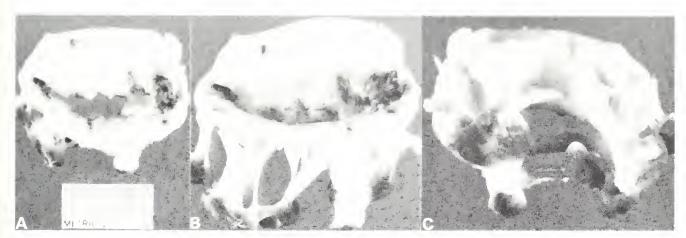


FIGURE 7: Three views of operatively excised stenotic mitral valve of rheumatic etiology: A. Atrial view; B. Side view showing thickened and fused chordae tendineae; C. Ventricular view.

binations. Infection may occur on previously anatomically normal or superimposed upon rheumatic or floppy mitral valves. Other rare causes of pure mitral regurgitation requiring mitral valve replacement include Libman-Sacks lesion of lupus erythematosus and single papillary musele syndrome (parachute mitral valve).

Tricuspid Valve:

Operatively excised tricuspid valves (isolated or combined) are relatively uncommon. Of 1,414 patients with one or more operatively excised cardiac valves, pure tricuspid regurgitation oecurred in only 17 (1%) patients.^{2,3} Of the 17 patients, 16 (94%) had another stenotic or purely regurgitant valve excised, and only one patient had isolated, pure tricuspid regurgitation (Ebstein's anomaly). Of the 16 patients with tricuspid and at least one other valve excised, 14 (88%) had associated mitral stenosis, one (6%) had associated mitral and aortic stensosis, and one (6%) had pure mitral regurgitation. Other patients with operatively excised valve may have had pure tricuspid regurgitation, but the tricuspid valve dysfunction was not severe enough to warrant valve replacement, or the valve was adequately repaired to prevent or delay replacement.

The etiology of pure tricuspid

regurgitation may be divided into those conditions associated with anatomically normal tricuspid valves and anatomically abnormal valves. Conditions producing pure tricuspid regurgitation associated with anatomically abnormal valves include rheumatic, floppy, Ebstein's anomaly, infective endocarditis, carcinoid heart disease, and papillary muscle dysfunction.^{2,3} Each of these conditions has at least one abnormal component of the tricuspid valve apparatus (anulus, leaflets, chordae tendineae, papillary muscles). As with pure mitral regurgitation, leaflet area and anular circumference are useful measurements in separating various etiologies of pure tricuspid regurgitation. Operatively excised rheumatic tricuspid valves are always associated with an anatomically abnormal mitral valve (most commonly stenosis). Floppy tricuspid valves and Ebstein's anomaly are morphologically similar, in that both have increased leaflet areas and anular circumferences. The major distinction between the two conditions is apical displacement of the anulus insertion found in Ebstein's anomaly.23

Other conditions producing pure tricuspid valve regurgitation requiring valve replacement include carcinoid syndrome, endomyocardial fibrosis, papillary muscle dysfunction from atherosclerotic coronary disease, and infective endocarditis.

The most common etiology of pure tricuspid regurgitation is not from intrinsic valve disease, but secondary to causes of right ventricular systolic hypertension producing dilation of the right ventricular eavity. In this group of operatively excised tricuspid valves, the leaflets, chordae tendineae, papillary muscles and commissures are normal with the only alteration being an increase in anular circumference. Of 17 patients with operatively excised tricuspid valves for pure tricuspid regurgitation, 15 (88%) had associated mitral stenosis. Of these 15, seven (47%) excised valves were anatomically abnormal with nearly normal anular circumfeences. The remaining eight tricuspid valves were anatomically normal except for increased anular circumferences. The latter eight patients had severe tricuspid regurgitation secondary to pulmonary hypertension from severe mitral stenosis.

Pulmonic Valve:

Pure pulmonic valve regurgitation may result from anatomically abnormal or normal valve cusps. Despite occasional patients with pure pulmonic regurgitation, pulmonic valves rarely are excised or replaced with prosthetic valves.

Pure pulmonic valve regurgitation

may result from congenital or acquired conditions. Of the acquired conditions, infective endocarditis, carcinoid, trauma (from balloon-tipped catheters), and rheumatic etiologies are most common. As in pure tricuspid valve regurgitation, the most common cause of pure pulmonic valve regurgitation is not intrinsic valve disease, but dilation of the pulmonary trunk and pulmonic valve "anulus" from any of several causes of pulmonary arterial systolic hypertension. Pure pulmonic valve regurgitation from intrinsic valve disease or secondary to pulmonary trunk dilation is rarely severe enough to warrant valve replacement.

Multiple Valve Excisions:

Of 1,414 patients with one or more operatively excised cardiac valves, 312 had double valve replacement, and three had triple valve replacement.^{2,3} Of the 312 patients with double valve replacement, the etiology was rheumatic disease in 298 (96%) and infective endocarditis in the remaining 14 (4%). The three patients with triple valve replacement (each aortic + mitral

+ tricuspid) had rheumatic heart disease. Thus, the vast majority (over 95%) of patients with multiple valve replacements have rheumatic etiology of the valve dysfunction.

REFERENCES

- Roberts WC: The structural basis of abnormal eardiac function: A look at coronary, hypertensive, valvular, idiopathic myocardial, and pericardial heart disease. In Clinical Cardiovascular Physiology, Levine HJ (Ed), Grune & Stratton, New York, pp 1-56, 1976.
- 2. Waller BF: Morphologic aspects of valvular heart disease—Part I. Curr Probl Cardiol, 1984.
- Waller BF: Morphologic aspects of valvular heart disease — Part II. Curr Probl Cardiol, 1984.
- 4. Virmani R, Roberts WC: Aschoff bodies in operatively excised atrial appendages and in papillary muscles: Frequency and clinical significance. *Circulation*, 55:559-563, 1977.
- Lachman AS, Roberts WC: Calcific deposits in stenotic mitral valves: Extent and relation to age, sex, degree of stenosis, cardiac rhythm, previous commissurotomy and left atrial body thrombus from study of 164 operatively excised valves. Circulation, 57:808-815, 1978.

- Miller BR, et al: Cardiac valve replacement in carcinoid heart disease. Am J Med, 75:896-898, 1983.
- Roberts WC, Morrow AG, Braunwald E: Calcific pulmonic stenosis. Circulation, 37:973-978, 1968.
- Covarrubias EA, et al: Calcific pulmonic stenosis in adulthood: Treatment by valve replacement. Chest, 75:399-402, 1979.
- Roberts WC, et al: Congenitally bicuspid aortic valve causing severe, pure aortic regurgitation without superimposed infective endocarditis. Am J Cardiol, 47:206-208, 1981.
- 10. Davies JJ: Pathology of Cardiac Valves. Butterworth Publishers, London, 1980.
- Waller BF, et al: Severe aortic regurgitation from systemic hypertension (without aortic dissection) requiring aortic valve replacement. Am J Cardiol, 49:473-477, 1982.
- 12. Bulkley BH, Roberts WC: Ankylosing spondylitis and aortic regurgitation: Description of the characteristic cardiovascular lesion from study of 8 necropsy patients. *Circulation*, 48:1014-1027, 1973.
- 13. Waller BF, et al: Etiology of clinically isolated severe, chronic pure mitral regurgitation: An analysis of 97 patients over 30 years of age having mitral valve replacement. Am Heart J, 104:276-288, 1982.

INDIANA MEDICAL BUREAU

1010 East 86th St.—72 Winterton Indianapolis 46240 844-7933

A Licensed Employment Agency Specializing in Medical Personnel

Since 1952

Before prescribing, see complete prescribing information in SK&F CO. literature or *PDR*. The following is a brief summary.

WARNING

This drug is not indicated for initial therapy of edema or hypertension. Edema or hypertension requires therapy titrated to the individual. If this combination represents the dosage so determined, its use may be more convenient in patient management. Treatment of hypertension and edema is not static, but must be reevaluated as conditions in each patient warrant.

Contraindications: Concomitant use with other potassium-sparing agents such as spironolactone or amiloride. Further use in anuria, progressive renal or hepatic dysfunction, hyperkalemia. Pre-existing elevated serum potassium. Hypersensitivity to either component or other sulfonamidederived drugs.

Warnings: Do not use potassium supplements, dietary or otherwise, unless hypokalemia develops or dietary intake of potassium is markedly Impaired. If supplementary potassium is needed, potassium tablets should not be used. Hyperkalemia can occur, and has been associated with cardiac Irregularities. It is more likely in the severely ill, with urine volume less than one liter/day the elderly and diabetics with suspected or confirmed renal insufficiency. Periodically, serum K+ levels should be determined. If hyperkalemia develops, substitute a thiazide alone, restrict K+ intake. Associated widened QRS complex or arrhythmia requires prompt additional therapy. Thiazides cross the placental barrier and appear in cord blood, bear of the pregnancy requires weighing anticipated benefits against possible bazards, including fetal or neonatal jaundice, thrombocytopenia, other adverse reactions seen in adults. Thiazides appear and triamterene may appear in breast milk. If their use is essential, the patient should stop nursing. Adequate information on use in children is not available. Sensitivity reactions may occur in patients with or without a history of allergy or bronchial asthma. Possible exacerbation or activation of systemic lupus erythematosus has been reported with thiazide diuretics.

Precautions: The bioavailability of the hydrochlorothiazide component of Dyazide' is about 50% of the bioavailability of the single entity. Theoretically a patient transferred from the single entities of Dyenium (triametrene, SK&F CO.) and hydrochlorothiazide may show an increase in blood pressure or fluid retention. Similarly, it is also possible that the lesser hydro-hlorothiazide bioavailability could lead to increased serum potassium levels. Invover, extensive clinical experience with "Dyazide' suggests that these conditions have not been commonly observed in clinical practice. Do periodic serum electrolyte determinations (particularly important in patients ormiting excessively or receiving parenteral fluids, and during concurrent see with amphotencin B or corticosteroids or corticotropin (ACTHI). Periodic BUN and serum creatinine determinations should be made, aspecially in the elderly, diabetics or those with suspected or confirmed enal insufficiency Cumulative effects of the drug may develop in patients with impaired renal function. Thiazides should be used with caution in atients with severe liver disease. Observe regularly for possible blood dyscrasias, liver damage, other idiosyncratic reactions. Blood dyscrasias ave been reported in patients receiving triamterene, and leukopenia, hrombocytopenia, agranulocytosis, and aplastic and hemolytic anemia iave been reported with thiazides. Thiazides may cause manifestation of stent diabetes mellitus. The effects of oral anticoagulants may be ecreased when used concurrently with hydrochlorothiazide; dosage adjustents may be necessary. Clinically insignificant reductions in arterial sysonsiveness to norepineptrine have been reported. Thiazides have also been shown to increase the paralyzing effect of nondepolarizing muscle alxants such as tubocurarine. Triamterene is a weak folic acid antagonist. to periodic blood studies in cirrhotics with splenomegaly. Antihypertensive ffects may be enhanced in post-sympathectomy patients. Use cautiously surgical patients. Tr

Plazides may add to or potentiate the action of other antihypertensive

uretics reduce renal clearance of lithium and increase the risk of lithium

Nerse Reactions: Muscle cramps, weakness, dizziness, headache, dry buth, anaphylaxis, rash, urticaria, photosensitivity, purpura, other dermatical conditions; nausea and vomiting, diarrhea, constipation, other strointestinal disturbances; postural hypotension (may be aggravated by bohol, barbiturates, or narcotics). Necrotizing vasculitis, paresthesias, erus, pancreatitis, xanthopsia and respiratory distress including pneumitis and pulmonary edema, transient blurred vision, sialadenitis, and rtigo have occurred with thiazides alone. Triamterene has been found in all stones in association with other usual calculus components. Pare idents of acute interstital nephritis have been reported. Impotence has en reported in a few patients on 'Dyazide', although a causal relationships not been established.

not been established.

pplied: 'Dyazide' is supplied as a red and white capsule, in bottles of 00 capsules; Single Unit Packages (unit-dose) of 100 (intended for titutional use only); in Patient-Pak ™ unit-of-use bottles of 100.

In Hypertension*... When You Need to Conserve K+

Remember the Unique Red and White Capsule: Your Assurance of SK&F Quality

Serum K⁺ and BUN should be checked periodically (see Warnings and Precautions).



Potassium-Sparing

DYAZIDE

8

25 mg Hydrochlorothiazide/50 mg Triamterene/SKF

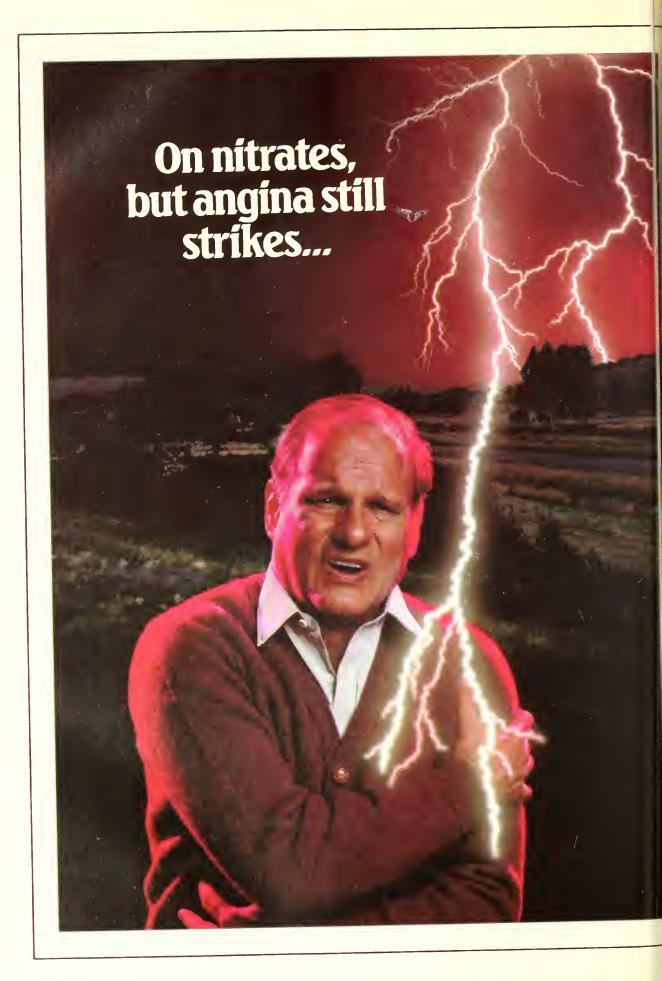
Over 19 Years of Confidence

The unique red and white Dyazide® capsule: Your assurance of SK&F quality.





a product of **SIK&F CO.** Carolina, P.R. 00630



After a nitrate, add ISOPTIN

(verapamil HCl/Knoll)

To protect your patients, as well as their quality of life, add Isoptin instead of a beta blocker.

First, Isoptin not only reduces myocardial oxygen demand by reducing peripheral resistance, but also increases coronary perfusion by preventing coronary vasospasm and dilating coronary arteries — both normal and stenotic. These are antianginal actions that no beta blocker can provide.

Second, Isoptin spares patients the beta-blocker side effects that may compromise the quality of life.

With Isoptin, fatigue, bradycardia and mental depression are rare. Unlike beta blockers, Isoptin can safely be given to patients with asthma, COPD, diabetes or peripheral vascular disease. Serious adverse reactions with Isoptin are rare at recommended doses; the single most common side effect is constipation (6.3%).

Cardiovascular contraindications to the use of
Isoptin are similar to those
of beta blockers: severe
left ventricular dysfunction,
hypotension (systolic pressure <90 mm Hg) or cardiogenic shock, sick sinus syndrome
(if no artificial pacemaker is present)
and second- or third-degree AV block.

So, the next time a nitrate is not enough, add Isoptin... for more comprehensive antianginal protection without side effects which may cramp an active life style.

ISOPTIN. Added antianginal protection without beta-blocker side effects.

ISOPTIN TABLETS

(verapamil HCl/Knoll) 80 mg and 120 mg

Contraindications: Severe left ventricular dysfunction (see Warnings), hypotension (systolic pressure <90 mm Hg) or cardiogenic shock, sick sinus syndrome (if no pacemaker is present), 2nd- or 3rddegree AV block Warnings: ISOPTIN should be avoided in patients with severe left ventricular dysfunction (e.g., ejection fraction <30%) or moderate to severe symptoms of cardiac failure. Control milder heart failure with optimum digitalization and/or diuretics before ISOPTIN is used ISOPTIN may occasionally produce hypotension (usually asymptomatic, orthostatic, mild, and controlled by decrease in ISOPTIN dose) Occasional elevations of liver enzymes have been reported, patients receiving ISOPTIN should have liver enzymes monitored periodically. Patients with atrial flutter/fibrillation and an accessory AV pathway (e.g., W-P-W or L-G-L syndromes) may develop a very rapid ventricular response after receiving ISOPTIN (or digitalis). Treatment is usually D.C -cardioversion AV block may occur (3rd degree, 0.8%) Development of marked 1st-degree block or progression to 2nd- or 3rd-degree block requires reduction in dosage or, rarely, discontinuation and institution of appropriate therapy Sinus bradycardia, 2nd-degree AV block, sinus arrest, pulmonary edema, and/or severe hypotension were seen in some critically ill patients with hypertrophic cardiomyopathy who were treated with ISOPTIN **Precautions:** ISOPTIN should be given cautiously to patients with impaired hepatic function (in severe dysfunction use about 30% of the normal dose) or impaired renal function, and patients should be monitored for abnormal prolongation of the PR interval or other signs of overdosage. Studies in a small number of patients suggest that concomitant use of ISOPTIN and beta blockers may be beneficial in patients with chronic stable angina. Combined therapy can also have adverse effects on cardiac function. Therefore, until further studies are completed, ISOPTIN should be used alone, if possible. If combined therapy is used, patients should be monitored closely Combined therapy with ISOPTIN and propranolol should usually be avoided in patients with AV conduction abnormalities and/or depressed left ventricular function or in patients who have also recently received methyldopa Chronic ISOPTIN treatment increases serum digoxin levels by 50% to 70% during the first week of therapy, which can result in digitalis toxicity. The digoxin dose should be reduced when ISOPTIN is given, and the patient carefully monitored. ISOPTIN may have an additive hypotensive effect in patients receiving bloodpressure-lowering agents. Disopyramide should not be given within 48 hours before or 24 hours after ISOPTIN administration. Until further data are obtained, combined ISOPTIN and quinidine therapy in patients with hypertrophic cardiomyopathy should probably be avoided, since significant hypotension may result. Adequate animal carcinogenicity studies have not been performed. One study in rats did not suggest a tumorigenic potential, and verapamil was not mutagenic in the Ames test *Pregnancy Category C*: There are no adequate and well-controlled studies in pregnant women. This drug should be used during pregnancy, labor, and delivery only if clearly needed. It is not known whether verapamil is excreted in breast milk, therefore, nursing should be discontinued during ISOPTIN use Adverse Reactions: Hypotension (2 9%), peripheral edema (1 7%), AV block 3rd degree (0.8%), bradycardia HR<50/min (1.1%), CHF or pulmonary edema (0.9%), dizziness (3.6%), headache (1.8%), fatigue (1.1%), constipation (6.3%), nausea (1.6%). The following reactions, reported in less than 0.5%, occurred under circumstances where a causal relationship is not certain, confusion, paresthesia, insomnia, somnolence, equilibrium disorders, blurred vision, syncope, muscle cramps, shakiness, claudication, hair loss, maculae, and spotty menstruation. Overall continuation rate of 94.5% in 1,166 patients. How Supplied: ISOPTIN (verapamil HCI) is supplied in 80 mg and 120 mg sugar-coated tablets. July 1982



IGNORANCE IS NO EXCUSE.

America's declining productivity is serious business.

It's about time we all got serious about it.



America's productivity growth rote hos been slipping badly for several yeors now, compored to that of other nations. And it's odversely affecting each ond every one of us. We've all seen

plants and businesses close down. Tens of thousands of jobs lost. Prices rising, quality deteriorating. A flood of foreign-made products invading our shores. It's all port of our declining productivity rate.

We've simply got to work it out ond we've got to work together to do it. But first, we need to know more obout the problem and the possible solutions so we can act intelligently ond effectively.

That's why you shauld send for this informative new booklet. It hasn't got all the answers—there are na quick and easy ways out—but it's o very good place to start the productivity education of yourself, your associates and your workers. It's free for the osking—and in quantity. Moil the coupon right away. Ignorance is na excuse.



A public service of this publication and the American Productivity Center.

America. Let's work together.

	ductivity Aware Lorton, VA 2207	eness Campaign 9
productivity P "Productivity	ke to improve m leose send me o The crisis that cre oiloble of cost fr	free copy of ept up on us "
Name		
Title		
Compony	<u> </u>	
	State	Zip



These instruments were the best available at the turn of the century. So was our professional liability coverage for doctors. In fact, we pioneered the concept of professional protection in 1899 and have been providing this important service exclusively to doctors ever since.

You can be sure we'll always offer the most complete professional liability coverage you can carry. Plus the personal attention and claims prevention assistance you deserve. For more information about Medical Protective coverage, contact your Medical Protective Company general agent.

14:05

MEDICINE STOREGIES CONTRACT

BOSSE WASIE COLDERON

Vernon E. Hoover, John J. Lindenschmidt, Philip R. Young Suite 237, 6100 North Keystone Avenue, P.O. Box 20576, Indianapolis, Indiana 46220, 317/255-6525 Robert B. Newell, Suite 265, 2260 Lake Avenue, Fort Wayne, Indiana 46805, 219/422-4783

False Aneurysm of the Brachial Artery Following Cardiac Catheterization

PAUL W. CRONEN, M.D. GEORGE L. ALCORN, M.D. WARREN R. RUCKER, M.D. Madison

RETERIAL COMPLICATIONS following cardiac catheterization and arteriographic procedures commonly include thrombosis, stenosis and more rarely, embolization and false aneurysm formation. With the brachial route obstructive problems are more apt to occur. False aneurysm of the brachial artery following eardiac catheterization is an unusual complication and little information is available in the surgical or cardiology literature regarding treatment.

Case History

A 49-year-old white man underwent cardiae catheterization for work-up of chest pain. A right brachial artery approach was used. Normal coronary vessels were found. His post catheterization course was uneventful until one month later when he noted a sudden

From the Sections of Surgery and Internal Medicine, The King's Daughters' Hospital, Madison, Ind.

Correspondence: Paul W. Cronen, M.D., 703 A Green Road, Madison, Ind. 47250.

Acknowledgments: Special thanks to Drs. Merritt Alcorn and Elton Heaton for photographic assistance and to JoAnn Longest for transcript preparation.

Abstract

The occurrence of a pseudoaneurysm following the Sones technique for cardiac catheterization is a complication that is not often reported in the literature. A case report is presented and an approach to treatment described based on the pathology encountered. Accepted treatment ranges from simple suture closure of the aneurysm neck in early cases to ligation and excision for grossly infected cases.

swelling at the operative site. The mass had radial pulsations and was approximately two centimeters in diameter. After observing the mass for one month, operative treatment was undertaken.

Exploration revealed a pseudoaneurysm at the arteriotomy site. This was treated by resection of the aneurysm anteriorly with preservation of the lateral and posterior walls of the native vessel. A vein patch was used to close the defect with interrupted 7-0 polypropylene suture. Systemic heparinization was utilized intraoperatively. Postoperative Doppler pressures of the radial artery were 110 mm Hg bilaterally, which were equal to the preoperative values. Microscopic examination showed evidence for a false aneurysm with thrombosis and inflammatory changes. Long-term followup has been good.

Discussion

False aneurysms of the brachial artery have played an important role in the historical development of

aneurysm surgery. In the sixth century, Aetius gave an account of the treatment of such a condition due to trauma, recommending ligation. Matas first described his technique of endoaneurysmorrhaphy in a brachial artery aneurysm in 1888.

Most reports of complications following catheterization cite thrombosis and stenosis rates of up to 10-16%.^{3,4} False aneurysms can occur in .17 to 2% of catheterizations through the femoral approach, but several large series do not list this complication for the brachial route.^{3,4,8,7} Eshaghy, *et al* reported a case of a false aneurysm as a result of eatheterization that presented with septic emboli to the hand and forearm.⁸ Due to gross infection at the aneurysm site, resection and ligation of the brachial artery was performed.

The etiology of the aneurysm in our case appeared to be due to dehiscence of the arteriotomy repair. Although no gross signs of infection were present, microscopic examination did show evidence of an inflammatory reaction. Other causes of false aneursym formation include the use of silk suture, stress on the anastamosis, and anticoagulation. While there are no existing data concerning treatment of this particular pseudoaneurysm, the complications of any such lesion include rupture, thrombosis, and distal embolization.

Most authors reporting on femoral artery false aneurysms from eatheterization advise early operation, allowing easier operative repair.^{3,5} A graded approach to treatment is recommended based on the extent of the aneurysm. Direct closure of the defect can be accomplished in early cases where a "pulsating hematoma" is found. Flinn



FIGURE 1: False ancurysm isolated.



FIGURE 2: Aneurysm excised and vein patch applied.

suggests use of a vein patch to repair the arterial defect when only part of the arterial wall is involved. The in tima needs to be examined carefully to exclude existing damage to the posterior wall of the vessel, which would require resection and end-to-end anastamosis or interposition vein graft. Resection and ligation is reserved for grossly infected cases with subsequent arterial reconstruction when the infection is controlled.

Brachial artery false aneurysms from cardiac eatheterization probably occur more frequently than present reports would indicate. Prompt treatment should be undertaken to prevent more serious complications.

REFERENCES

- Eastcott HHG: Aneurysms and the surgeon: An historical review. In Aneurysms: Diagnosis and Treatment, Bergin JJ, Yao JT (eds), Grune and Stratton, New York, 1982.
- Matas R: Traumatic aneurysm of the left brachial artery. Med News, 53:462, 1888.
- Brenner BJ, Couch NP: Peripheral arterial complications of left heart catheterization and their management. Am J Surg, 125:521-526, 1973.
- Armstrong PW, Parker JO: The complications of brachial arteriotomy. J Thorac Cardiovasc Surg. 61:424 429, 1971.



FIGURE 3: Photomicrograph of aneurysm wall showing thrombus and inflammatory changes.

- Bourassa MG, Noble J: Complication rate of coronary arteriography: A review of 5,250 cases studied by a percutaneous femoral technique. Circulation, 53:107-114, 1976.
- Campton BV, et al: Arterial complications of retrograde brachial artery catheterization: A prospective study. Mayo Clin Proc, 46:589-592, 1971.
- 7. Ross RS: Arterial complications. Circulation Supp III, 37:39-41, 1968.
- 8. Eshaghy B, et al: Mycotic aneurysm of
- brachial artery: A complication of retrograde catheterization. *JAMA*, 228:1574-1575, 1974.
- Gardner TJ, Brawley RK, Gott UL: Anastamotic false aneurysms, Surgery, 72:474-478, 1972.
- 10. Flinn WR, Yao JT, Bergin JJ: Aneurysms of secondary and tertiary branches of major arteries. In Aneurysms: Diagnosis and Treatment, Bergin JJ, Yao JT (eds), Grune and Stratton, New York, 1982.

Surgical Management of Hemodialysis Patients

DANIEL II. SPITZBERG, M.D. Indianapolis

Abstract

Ophthalmic surgeons can expect increased opportunities in the future to treat patients who undergo maintenance hemodialysis. Such patients often present with complex medical problems and carry high risk factors for surgery. Nevertheless, the full range of ophthalmic surgical procedures can be accomplished without increased morbidity when patient management is carefully organized between the ophthalmologist and nephrologist.

The author is a Clinical Assistant Professor, Dept. of Ophthalmology, Indiana University School of Medicine, Indianapolis.

Correspondence: Dept. of Ophthalmology, 702 Rotary Circle, Indiana University Medical Center, Indianapolis, Ind. 46223.

Acknowledgment: Tables 1-4 are reprinted from Ophthalmic Surgery, May 1984, Vol. 15, No. 5, pp. 415-417. Published by SLACK Incorporated, Medical Publishers, Copyright 1984.

The author gratefully acknowledges the invaluable assistance and encouragement of fered by Dr. Theodore F. Hegeman, no phrologist, Indianapolis, Ind.

VER THE PAST TWO decades the small group of end-stage renal disease patients surviving with maintenance hemodialysis has increased dramatically, projected to be 100,000 to 200,000 this year. The widespread establishment of dialysis centers has improved the mobility of this emerging subgroup of society, and ophthalmologists have begun to encounter chronic renal failure patients seeking treatment for ophthalmic complications related to their underlying medical disorder (Table 1),24 trauma and surgical problems common to the general population.

Since long-term survival of end-stage renal disease patients receiving hemodialysis continues to improve, surgical intervention which offers visual improvement will also be more frequently indicated. Surgery cannot be denied solely because the individual is reliant on the artificial kidney.5 These surgical candidates, when conscientiously managed by the cooperative efforts of ophthalmologist and nephrologist, can be expected to tolerate operative procedures with minimal morbidity. The key to this successful outcome is a basic understanding by the surgeon of the interrelated medical problems confronting the dialysis patient.

The loss of renal function creates several significant problems for both surgeon and patient because the circulating blood cannot be cleansed and excess electrolytes eliminated. Sodium retention produces hypertension, toxic metabolites accumulate (altering mental status), and medications that rely on glomerular filtration remain in circulation. In the absence of kidney-produced crythropoietin there is little

stimulus for the bone marrow to replace lost blood cells. Uremia damages platelet function and coagulation pathways.

The end-stage renal patient represents a closed system where very small changes in total body fluid can overstress the already compromised cardiopulmonary circuit. Any of the aforementioned problems can be aggravated by an acid-base imbalance.

Nonetheless, the surgeon should not allow himself to be overwhelmed. Once the need for surgery is established, the ophthalmologist must coordinate an organized management strategy with the attending nephrologist. The medical history and current treatment regimen are reviewed jointly. Particular attention must be directed to the dialysis schedule and present medications. Inpatient hospitalization is strongly advised as it facilitates the necessary preoperative work-up and offers the best environment to control potential medical misadventures.

Preoperative dialysis should be accomplished within 48-72 hours prior to surgery. Anesthetic risk will be reduced because pH, electrolyte levels and fluid balance are optimized. Hypertension will also be easier to control. Hemostasis is more easily achieved because reduced serum uric acid improves platelet aggregation.

During hemodialysis heparin is required in the extracorporeal circuit. The slow infusion technique, (versus bolus or regional heparinization), is recommended for these patients to prevent rebound hypereoagulability or compromised hemostasis.⁵

Hyperkalemia is recognized as the most frequently encountered complication in these patients. A rise in serum

potassium of 1.0 mEq/1 is anticipated during the administration of general anesthesia due to drug actions and ventilatory shifts.8 Therefore, preoperative serum potassium levels for elective surgery must not exceed 5.5E/1. Hospital diets should also be adjusted to limit sodium and potassium intake. Routinely, a suitable diet permits 80 g protein, 3000 mg sodium nd 3000 mg potassium. The patient should be instructed to forego the use of salt substitutes during the hospitalization and probably at all times. In addition to the direct hazards of hyperkalemia, its treatment with dialysis in the immediate postoperative period raises the risk of postsurgical hemorrhage.

Most dialysis individuals are on a number of necessary medications. Review each patient's drug regimen and consult the nephrologist when considering changes. Strict adherence to the internist's recommendations concerning antihypertensive therapy is encouraged. Aluminum antacids bind dietary phosphate, and its use is universal in this group.5 Patients frequently overlook this agent when reciting their medications; however, its use is critical and should be included in your orders. In light of the prolonged half-life of digitalis in uremic individuals, such preparations should be discontinued one full day prior to surgery to prevent digitalis toxicity.7

Nephrologists limit the fluid intake of their dialysis patients so as to maintain a target dry weight, i.e., that point where blood pressure and cardiac performance are optimized. This strategy must not be abandoned upon transfer to the surgical ward. Fluid intake must be scrupulously monitored and restricted to an average of 1000 ml per 24 hours for some patients. Small bore IVs should be maintained at the keepvein-open rate. It is best to avoid IVs altogether whenever possible.

Dialysis patients are chronically anemic. Three contributing factors have been clearly demonstrated.9 Red cell membranes are lysed in uremic serum. Surviving red cells experience

TABLE 1

Eye Disorders Frequently Observed in the Dialysis Population^{2,3,4}

- I. Related to Underlying Medical Disorder
 - A. Diabetes Mellitus
- * Xanthelasma
- * Cataraet

Decreased corneal sensation:

- * Corneal ulcer and scarring
- * Corneal perforation Proliferative retinopathy
- * Preretinal membrane formation
- * Viltreous hemorrhage
- * Retinal detachment
- B. Alport's Disease

Microspherophakia

- * Cataract
- Anterior/Posterior lenticonus
- C. Nephrocalcinosis

Hypertensive retinopathy Retinal vein occlusion

- * Vitreous hemorrhage
- D. Polycystic Kidney Disease

RPE disintegration Flecked retina syndrome

E. Juvenile Familial Nephropathy

Tapetoretinal degenerations

- II. Related to Chronic Hemodialysis
 - A. Opportunistic Infections

CMV Retinitis

Toxoplasmal Retinitis

- * Endogenous endophthalmitis (personal observation)
- * Mucormycosis
- * Reactivation of corneal Herpes Simplex
- B. Drug Effects
 - 1. Corticosteroids
- * Elevated intraocular pressure
- * Premature cataract
- 2. Heparin
- * Spontaneous vitreoretinal hemorrhages Limbal hemorrhages
- 3. Glucose added to dialysate* Elevated intraocular pressure
- C. Hypercalcemia
- * Corneal opacification
- * Pinguequela
- D. Miscellaneous
- Abnormalities of Bruch's membrane

Sclerosis of choroidal vessels

^{*} Surgical indications may exist.

TABLE 2

Systemic Antibiotic Usage in Hemodialysis Patients^{3,12}

Require Dosage Adjustment:

Ampicillin

Carbenicillin

Ticareillin

Trimethoprim

Sulfisoxazole

Amikacin

Gentamicin

Streptomycin

Cefamandole

Cefazolin

Contraindicated:

Neomycin

Polymixin B

Tetracycline

Minocycline

a shorter life span compared to normal individuals. Erythropoietin stimulus to replenish lost red cells is absent. These patients, however, have adjusted in most cases to their anemia and usually function well with a baseline hematocrit of around 25%. Preopera tive transfusions aimed at raising the hematocrit impose a potentially lethal fluid load. Moreover, investigators have shown that the hematocrit will return to its baseline level within a few days of the transfusion anyway.4 The ophthalmologist needs to be aware of the increased prevalence of serum hepatitis in this population,6 and operating room personnel should be warned to be particularly cautious in handling surgical instruments and needles. Liver function studies and hepatitis B surface antigens must be tested.

The peripheral arteriovenous fistula represents—the—maintenance hemodialysis patient's lifeline, and its preservation—cannot—be—overemphasized. All personnel who handle the patient must be repeatedly warned to protect the fistula. Inadvertent limb positioning—can—render—the—access

useless, necessitating additional surgery. No IVs or injections may be introduced into this extremity. Nearly one quarter of all dialysis patients thrombose their fistulas in the operating room.⁷

The use of prophylactic antibiotics merits careful consideration. Motlich⁶ outlines the additional risks of infection in these individuals with impaired host defenses. Chronic renal failure patients demonstrate suppression of cell mediated immunity" and dialysis creates granulocyte dysfunctions. Uremia alters skin and mucosal barriers. Eye surgery involving the use of prostheses and artificial devices, and lengthy operations may increase the risk of infection. Insofar as no absolute guidelines exist to direct the use of prophylactic antibiotics in these patients, the surgeon's decision must be tempered by each of the above factors.

Topical and subconjunctival antibiotic usage permits the delivery of extremely high drug concentrations to the eye. Even though these agents are absorbed into the systemic circulation, they are rapidly diluted and the total quantity of drug administered between dialysis sessions is so small that no special precautions are necessary. Parenteral antibiotic usage is an entirely different matter. Toxicity can promptly evolve when repeated large doses of antibiotics dependent on renal elimination are given. These restricted antibiotics are identified in *Table 2.*56,12

Most topical ophthalmic drugs are generally safe. Adverse systemic effects related to the use of topical anticholinergies, antiglaucoma and sympathomimetic agents are rare in the general population." End-stage renal disease patients do not experience a greater risk of developing side effects because in 48-72 hours very small amounts of drug reach the circulation and alternate excretory pathways exist. *Table 3* offers a list of drugs so dangerous to these patients that their use is forbidden.

Mannitol, an osmotic diuretie, is administered parenterally to shrink the

TABLE 3

Drugs Not to be Given to Perioperative Dialysis Patients^{5,6,12}

Acetazolamide (Diamox)

Aspirin

Decamethonium

Digitalis

Diuretics (except Furosimide)

Gallamine

Glutethimide

Glycerol

Kanamyein

Mannitol

Morphine

Oral Hypoglycemics (except

Tolbutamide)

Phenazopyridine (Pyridium)

Probenecid

vitreous preoperatively, and occasionally to lower postoperative pressure rises. Oral glycerin also shares these indications, in addition to its traditional role in the treatment of acute narrow angle glaucoma. Both agents add to the tonicity of the blood and depend on renal elimination. In the anephric these drugs circulate unchanged until the next dialysis. Small doses can precipitate pulmonary edema, metabolic acidosis, hyponatremia and hyperosmolar nonketotic coma.¹⁴ Therefore, alternative methods of lowering intraocular pressure should be employed.

In this group of patients it is preferred that ophthalmic surgery be performed under local anesthesia or local-standby whenever practical, thus minimizing the risk of additional complications. Satisfactory patient comfort and relaxation can be attained through the intravenous administration of Diazepam, Diphenhydramine or other effective short-acting hypnotic agents. Renal excretion plays an insignificant role in their termination of action, and they are safe when prescribed in the recommended doses.¹⁵

Appropriate local anesthetic choice requires careful consideration. Begin

with the smallest doses possible until a satisfactory effect is achieved. Lidocaine (Xylocaine) is an excellent drug for brief procedures lasting under one hour, while mepivacaine (Carbacaine) is recommended for operations up to two hours. For extensive surgery or in those situations where long acting postoperative anesthesia is desired, bupivacaine (Marcaine) is ideal. All of these agents are slowly degraded in the liver.¹⁶

Local anesthetics containing epinephrine are to be avoided. They offer limited benefits when the excessive risks to this hypertensive, diabetic group are considered. If prolongation of anesthesia is desired, simply rely on a longer-acting drug. The transient vasoconstriction provided by adrenergic agonists is not a reliable adjunct to hemostasis in these Iragile patients.

The hemodialysis patient tolerates most commonly used inhalational anesthetics with balanced use of nitrous oxide, narcoties and skeletal muscle relaxants.11 The major intraoperative risk in this group is depressed cardiac output; therefore, the lightest possible anesthetic plane is preferred.6 Whenever general anesthesia is indicated, long-acting barbiturates and decamethonium should not be administered.8 Succinylcholine is the most frequently employed muscle relaxant used to facilitate endotracheal intubation and, while previous reports of its role in producing hyperkalemia are overstated, its use does produce a small but definite increase in serum potassium.¹⁷ Secondary hyperventilation may be necessary to lower carbon dixoide levels and protect the patient from metabolic acidosis. Stringent fluid restriction is maintained by remembering to minimize the IV flow, and the use of the IV solutions containing potassium (e.g., Ringers lactate), is forbidden. Continuous EKG monitoring is mandatory.

The qualitative platelet deficiency present in renal failure patients poses a threat to hemostasis. 18 The surgeon must not be falsely reassured by an

TABLE 4

Suspicious Postoperative Symptoms^{5,6}

	Possible
Symptom	Etiologies
Fatigue	Congestive heart failure, anemia
Thirst	Uncontrolled
	hyperglycemia
Dyspnea	Congestive heart failure, anemia, acidosis
Chest pain	Myocardial ischemia, pericarditis
Hypotension	Myocardial ischemia, pericardial effusion, sepsis
Fever	Infection, hepatitis
Altered	Drug toxicity,
mental	underdialysis,
status	sepsis

adequate platelet count. Meticulous hemostasis is vital. Fortunately, platelet function is restored to near normal by the perioperative dialysis regimen already presented.

Postoperative management is largely the application of principles already discussed. Attention again is directed to the most frequently encountered complications and their prevention. Hyperkalemia is the leading cause of postoperative morbidity.6 Follow-up serum electrolyte levels should be obtained every six to eight hours during the first postoperative day, but thereafter blood work should be minimized in light of the anemia. An EKG demonstrating absent P waves, peaked T waves, widened QRS complexes and prolonged PR intervals are extremely worrisome as they signify increased serum potassium levels.6 Careful recording and inspection of vital signs is critical. Fever must be investigated promptly as infection remains the leading contributor to postsurgical mortality.* Elevated blood pressure in these patients usually represents fluid overload, whereas hypotension can result from pericardial effusion, myocardial infarction, autonomic dysfunction or medications.

Common analgesics prescribed for ophthalmic surgery patients (codeine, meperidine, propoxyphene, acetaminophen) can be dispensed in the usual doses in view of their predominantly hepatic route of excretion.¹⁷

Although it is not within the scope of this report to discuss the management of all post-surgical intraocular pressure variations, the surgeon must be alerted to the possibility of severe ocular hypertension in this group during postoperative dialysis. Ramsell¹⁹ and associates studied the changes in intraocular pressure during routine hemodialysis in 19 patients. The most dramatic shift in IOP occurred during the first three hours of dialysis. Although the group average IOP deviation was a 0.2 mm Hg rise, individual patients experienced elevations as high as 16.0 mm Hg.

Numerous investigators have been able to duplicate these findings. Burn²⁰ reports one female dialysis patient who encountered a spectacular rise of 74.0 mm Hg. The role of changing plasma osmolality in this phenomenon is debated. A measurable jump is found in one-third of all patients. Poor outflow facility appears to be a contributing factor to this rise; however, there presently exists no way to accu ately predict which patients will manifest the greatest IOP rise. Consequently, topical pilocarpine and timolol may be useful in improving outflow during dialysis.20 These patients should receive a minimum of two interval penlight examinations during postoperative dialysis and a more careful evaluation once dialysis is concluded.

In conclusion, ophthalmologists can expect increased opportunities in the future to treat patients undergoing maintenance hemodialysis. Such patients often present with complex

underlying medical problems and special needs related to their reliance on the artificial kidney. This challenge should not frighten the surgeon. The full range of ophthalmic surgical procedures can be accomplished without increased morbidity when such patients are properly managed. Organized preparation for any surgery must be coordinated between the ophthalmologist and nephrologist. Specific guidelines have been offered to reduce the risk of complications at each phase of hospitalization. When conscientiously managed, the end-stage renal patient can expect an uneventful hospitalization and a successful surgical outcome.

REFERENCES

- Stuart FP, Simonian S, Hill J: Special considerations in surgical management of patients on hemodialysis after kidney transplantation. Surg Clin North Am, 56:15, 1976.
- 2. Polak BCP: Ophthalmic complications of hemodialysis and kidney transplan-

- tation. Doc Ophthalmol, 49:1, 1980.
- 3. Hirschman GH: Complication of dialysis. Clin Nephrol, 15:66, 1981.
- Jansonius D: Retinal disturbances in renal dialysis patients. Ophthalmologica, 171:346, 1975.
- 5. Wright L: Maintenance Hemodialysis. GK Hall Med Publishing, Boston, p 81,
- Motlich M: Management of Medical Problems in Surgical Patients, FA Davis Co, Philadelphia, p 533, 1982.
- Brenowitz J, Williams C, Edwards W: Major surgery in patients with chronic renal failure. Am. J Surg., 134:765, 1977.
- Bastron R, Deutsch S: Anesthesia and the Kidney. Grune & Stratton, New York, 1976.
- 9. Hampers C, ct al: Major surgery in patients on maintenance hemodialysis. Am J Surg, 115:747, 1968.
- 10. Blythe W: The management of intercurrent medical and surgical problems in the patient with chronic renal failure, In Strauss & Welt's Diseases of the Kidney, Early L, Gottschalk C (eds), Little, Brown & Co, Boston, p 522, 1979.
- 11. Goldbaum SE, Reed WP: Host defenses and immunologic alterations

- associated with chronic hemodialysis. *Ann Intern Med*, 93:597, 1980.
- Benett W, et al: Guidelines for drug therapy in renal failure. Ann Intern Med, 86:754, 1977.
- 13. Medical Letter on Brugs and Therapeutics, 24:51, 1982.
- 14. Cheigh J: Drug administration in renal failure. Am J Med, 62:555, 1977.
- Prescott LF: Mechanisms of renal excretion of drugs. Br J Anaesth, 44:246, 1972.
- Wilson RP: Anesthesia. In Ophthalmic Surgery: Principles and Practice, Spaeth GL (ed), WB Saunders, Philadelphia, pp 81-102, 1982.
- Silberman H: Renal failure and the surgeon. Surg Gynecol Obstet, 144:775, 1977.
- Stickel D, Seigler H: Renal allografts. In Davis-Christopher Textbook of Surgery, Sabiston D (ed), WB Saunders, Philadelphia, p 477, 1977.
- Ramsell JT, Ellis PP, Patterson CA: Intraocular pressure changes during hemodialysis. Am J Ophthalmol, 72:926, 1971.
- 20. Burn RA: Intraocular pressure changes during hemodialysis. Br J Ophthalmol, 57:511, 1973.



AIR FORCE MEDICINE — AN ATTRACTIVE ALTERNATIVE TO PRIVATE PRACTICE

Are you sick of the paperwork battle? Are you more familiar with the latest computer technologies instead of those of your specialty? Are supply and equipment problems getting you down?

Join our Aerospace Medical team, concentrate on your medical practice, and leave the paperwork hassle to others. We use the group practice system of health care, it allows maximum patient/physician contact with a minimum of administrative responsibilities.

You'll get to use those skills you've gained through the years of education; to stay up with new methods and techniques; and, if qualified, to specialize.

These benefits and our superior employment package make Air Force medicine an attractive alternative to private practice. To find out more about how you can be a part of the Air Force health care team, contact us and we'll answer all of your questions without obligation.

Contact

Capt. Scott Simpson or TSgt. Steve Beecher 317-269-6164 or 6354 collect



Snakeroot Extract

Number 4

April, 1985

A NEWSLETTER OF INDIANA MEDICAL HISTORY

Society's New Executive Secretary is also a Medical Historian

On October 1, 1984, Peter T. Harstad became the executive secretary of the Indiana Historical Society. With his appointment, the Society not only gained a new chief executive officer, but also another medical historian. Harstad holds a doctorate in history from the University of Wisconsin. He has published a variety of articles in medical history and is currently engaged in several projects involving the history of medicine. From 1981 to 1984, Harstad was development officer at Bethany Lutheran College in Minnesota. Previous to that, he held positions as director of the State Historical Society of Iowa and professor of history at Idaho State University.

Harstad's interest in medical history dates from his years in graduate school at the University of Wisconsin. Originally interested in economic history, Harstad became intrigued with the history of medicine while using manuscripts from Wisconsin's territorial period. "I was fascinated by the references to sickness, particularly malaria, in these documents," says Harstad. It is not surprising then that his master's thesis and doctoral dissertation focused on health and sickness in the upper Mississippi valley from 1820 to 1861. While at Wisconsin, Harstad had an opportunity to attend the lectures of a noted visiting scholar and historian, Erwin H. Ackerknecht, M.D., and the well known historian of pharmacy, Glenn A. Sonnedecker, Ph.D., was on his dissertation committee.

Upon completion of his doctorate in 1963, Harstad accepted a history professorship at Idaho State University. Although the University had very limited sources in the history of medicine, Harstad was able to continue his research in the field. Using published medical examination records, Harstad analyzed the extent and scope of draft resistance during the Civil War. From his research, Harstad discovered that a large number of men in the north attempted to avoid the draft by feigning illness, exaggerating existing illness, artificially producing symptoms, or sending a sick substitute to impersonate a

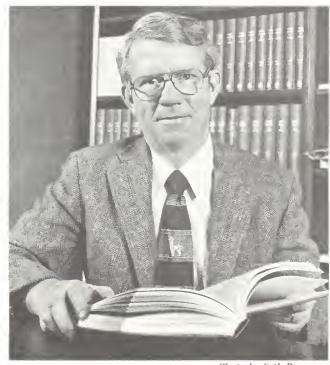


Photo by Seth Rossman

Peter T. Harstad

healthy man. He also found that unhealthy men tried to hide their disabilities and gain admission to the army to receive bounty payments and then, later demand medical discharges. Harstad's research was published in Rendezvous: Idabo State University Journal of Arts and Letters, Wisconsin Magazine of History, and Civil War Times Illustrated.

In 1972, Harstad became director of the State Historical Society of Iowa. Although his duties at the Historical Society of Iowa were primarily administrative, Harstad continued his research in medical history. He

Manuscript Acquisitions

By Ann G. Carmichael, M.D., Ph.D.

Clarice June Hale of Boonville, Indiana, has a keen eye for valuable historical items offered at auction. Generously Mrs. Hale has donated one such treasure, the journal and account book (1864-1881) of Dr. J. A. Newton, oculist, to the Indiana Historical Society. Doctors' journals, fee books, and notebooks are rare even among late nineteenth-century materials, but when they appear in research libraries, they are favorite resources of medical historians. What makes this particular document unique, however, is that it is the journal of an ordinary itinerant oculist who practiced along the Ohio River valley after the Civil War.

Dr. Newton begins the actual case entries in his journal with note of J. J. Ashby's "Chronic Oculo-Palpaebral Conjunctivitis, Opaque Cornea, Vascular Cornae." Newton discharged Ashby as "cured" and charged him eighty dollars. Despite the rather stiff fee exacted by Newton, Ashby praised the young practitioner. Ashby's testimonial was transcribed by Newton in the back of his journal:

In the spring of 1862, my eyes became sore, and in a short time I was blind. I called in the best physicians in the country, and tried various remedies, but it all availed nothing. In the fall of 1862, I went to Louisville, and was treated by Prof Flint, three months, without being benefitted. I returned home and remained there until the spring of 1864, when I again returned to Louisville, and placed my self under the treatment of the celebrated Dr. Jones (formerly of New York). I used his medicines for

ISSN 0743-6033

Snakeroot Extract is a joint publication of the Indiana Historical Society's Medical History Committee (315 West Ohio Street, Indianapolis, Indiana 46202) and the Indiana Medical History Museum (Old Pathology Building, 3000 West Washington Street, Indianapolis, Indiana 46222) The newsletter is mailed to members of both the committee and the museum.

Charles A. Bonsett, M.D., Editor

Ann G. Carmichael, MD., Ph.D., Asst. Editor

Katherine Mandusic McDonell, Managing Editor Submit all items for publication in the newsletter and inquiries about membership information to the Managing Editor, c/o Indiana Historical Society, 315 West Ohio Street, Indianapolis, Indiana 46202

Snakeroot Extract derives its name from the white snakeroot plant, a plant that is significant in Indiana medical history. For years, a mysterious disease called milk sickness plagued early. Hoosiers. There were many theories as to the disease's cause, but the actual cause remained unknown until the 1920s. At that time, the disease was traced to the white snakeroot plant or, rather, to the consumption of milk from cows that had eaten it. The plant contains the poison tremetol.



Dr. J. A. Newton Broadside

some time without any benefit. About this time, Dr. Newton commenced treating my eyes. In four weeks I could [see] sufficiently well to walk about the farm without assistance. At the end of seven weeks, I could see my wife, children, and friends, which I had not been able to do before, for three years. I enjoy at this time very good vision. I wish that I could speak in person to all the blind and soreeyed people in the country. I feel confident that I could induce them to give Dr. Newton a trial. February 6, 1864

Ashby lived near Madisonville, Kentucky, about fifty miles south of Evansville. During the next two decades, Newton gradually moved his "practice" northward, finally settling in Boonville, Indiana, where he published Ashby's testimonial in a broadside. Ashby's words, together with the accounts of other satisfied patients, announced Newton's practice in rural southern Indiana.

Until the nineteenth century, it was quite common for oculists to travel from town to town, often "couching for cataract" by pushing in or pulling out an opaque lens. Instruments testify to the cataract procedure in ancient times, and elaborate needles for the task were common tools in the traveling kits of most European surgeons before 1700. Increasingly during the eighteenth and nineteenth centuries, specialists of all sorts who wanted to avoid being labeled quacks settled in towns, where they could reach a larger patient population. Ashby's testimonial in fact reveals that most people expected to find a specialist in eye diseases in a large city. Louisville practitioners served the needs of much of western Kentucky and southern Indiana, fitting them for eyeglasses and treating cataracts as well as infectious and traumatic eye problems.

Thus Newton is unusual in his door-to-door, town-totown practice. He clearly made a circuit, returning frequently to small towns like Madisonville, Nebo, and Ramsey, Kentucky, and Boonville, Evansville, Spring Sta-

(continued on Page 3)

Manuscript Acquisitions

(continued from Page 2)

tion, and Folsumville, Indiana. Although he copied into his book recipes for catarrh, diphtheria, and ague, among other common medical problems of the day, there is no hint that Newton tried to expand his specialty to a general practice. Newton also scribbled the addresses of manufacturers who supplied artificial eyes, as well as references to lens grinders and opticians, but he did not appear to dispense eyeglasses. He only operated once for cataracts, but the operation was unsuccessful. One of the most puzzling aspects of the journal is where Newton resided. "I stayed with [Newton] 10 weeks & he cured me," one patient claimed. Occasionally Newton itemized costs for room and board among patient charges.

Newton suffered many of the same economic hardships of practitioners in his day who were not long-established town residents and property holders. Though he charged large sums for his services—ranging from twenty to one hundred dollars—many patients failed to pay their bills. Twice in the late 1860s and early 1870s, Newton ventured to Texas and Arkansas, possibly to earn a better living. Increasingly he handed over bad debts to unsympathetic collectors. Newton needed immediate cash and accepted the losses incurred when he sold his promissory notes.

Newton was probably typical of the oculists of the early nineteenth century. He undoubtedly had received some formal education in ophthalmology, if only an apprenticeship, for his diagnosis approximated professional sophistication: "Catarrho-Rheumatic Ophthalmia," "thickened and granulated superior palpaebral conjunctivae," and "strumous ophthalmia, small opacity of left cornea." The inside cover of the journal even contains a sketch of the globes (eyeballs) with convergence of the optic nerves, although much of it is covered over with pasted-in newspaper clippings for "hydrophobia and venemous bites," "corn-cob kindlings," and recipes for whitewash. Despite his attempts at professionalism, Newton's practices were outdated by the late nineteenth century. He never mentioned an ophthalmoscope, or any internal ocular problem, and he still used leeches to bleed patients. Newton did take advantage of chloroform in his operations, and probably carried a number of instruments with him at all times.

It is unusual to find the records of any type of itinerant practitioner, especially those of an oculist. Moreover, it is exceedingly rare to harvest so much information about the ordinary eye diseases of the nineteenth-century Americans. Eye problems common in this region a century ago now are seen only in the "third world." Undoubtedly trachoma (chlamydial infection of the eyes), as well as many secondary infections following dust, sand, and gravel inclusions in the eye, accounted for the blindness and sore eyes that Newton depended upon for his livelihood. Standards of personal hygiene have



Early nineteenth-century cataract knives and needles. Drawing reproduced from William Gibson, The Institutes and Practice of Surgery: Being the Outlines of a Course of Lectures, Vol. II (Philadelphia. Edward Parker, 1825), Plate V.

greatly improved since the 1870s, and easy access to medical care have relieved the ordinary problems of daily life in nineteenth-century America. But Newton's patients were confident that a good eye doctor could ease the burden even then:

About 3 years since my little daughter was attacked with sore eyes. For two years we endeavored the [sic] cure them using various remedies & trying several physicians without satisfactory result. in the spring of 1870 I took her to Dr. Newton & he has cured her, she has not been treated for one year & yet her eyes remain perfectly sound. I can with confidence recom[m]end Dr. Newton to any one having bad Eyes.

David W. Clayton, Lynnville, Ind., April 20, 1871

Pharmaceutical Company History Exhibit Planned

Opening June 10, 1985, at the Indiana Historical Society, "Miles: The First Century" depicts the one-hundred-year history of Miles Laboratories, Inc. Head-quartered in Elkhart, Miles is one of Indiana's oldest and largest research-based manufacturers. Medicine bottles, industrial photographs, business documents, historical consumer products, and original advertising artifacts will be featured in the exhibit, which travels to Indianapolis from South Bend's Discovery Hall Museum. "Miles: The First Century" was developed and designed by Discovery Hall staff members Geoffrey J. Huys and Marsha Mullin in collaboration with archivist Donald N. Yates, Ph.D., of Miles Laboratories' public relations department. The original exhibit, mounted last year in South Bend, is currently being expanded and a new catalogue prepared.

Society's New Executive Secretary

(continued from Page 1)

extracted and computerized data from Iowa medical directories to profile early Iowa physicians. Through his statistical analysis of the data, he discovered that medical sects, women physicians, and specialists were more prevalent in large cities. Using this data and making comparisons over time, he found that educational levels and medical beliefs of physicians had changed decidedly in the late nineteenth century. Also while at Iowa, Harstad participated in a Bicentennial Symposium, "Wisconsin Medicine, 1776-1976," sponsored by the Department of the History of Medicine at the University of Wisconsin-Madison. His paper, "Frontier Medicine in the Territory of Wisconsin," was published in Wisconsin Medicine: Historical Perspectives, edited by Ronald L. Numbers and Judith Walzer Leavitt (University of Wisconsin Press, 1981).

One of the ongoing medical history projects in which both Harstad and his wife, Carolyn, are engaged is the

NOTICE: The Indiana Medical History Society, Inc., will hold its annual meeting on Saturday, April 20, 1985, at 10 a.m. at the Indiana Medical History Museum. The progress and future plans of the museum will be discussed. All members of the Indiana Medical History Society, Inc., are invited to attend.

Indiana Historical Society
Indiana Medical History Committee
315 West Ohio Street
Indianapolis, IN 46202

transcription and editing of the letters of Dr. Thomas Steel. Steel attended the University of London and received his medical degree from the University of Glasgow in 1833. He traveled to the Orient as a ship's doctor, studied further at Paris, then practiced medicine and dentistry in London until the early 1840s. In 1843, Steel joined with the disciples of Robert Owen, and this Socialist group immigrated to the Territory of Wisconsin the same year to found a communal farm. Steel served as a physician for this group for a short period, became disenchanted, and then set up private practice.

Harstad also collects medical books and artifacts. He has amassed several hundred medical books, with a significant number of volumes on homeopathy. He also has a small collection of medical artifacts including obstetrical instruments, a set of portable scales, and homeopathic medicine containers.

As for possible medical history research projects in Indiana, Harstad would like to see a statistical profile of Indiana physicians, using some of the same quantitative methods he employed in Iowa. He would also like to trace the history of the University of Iowa Medical School, which in an indirect way has its origins in the Indiana Medical College (1841-1856) in LaPorte.

Harstad is excited about the prospects for medical history in Indiana. Says Harstad: "Given the recent accomplishments of the Medical History Committee of the Indiana Historical Society in collecting books and manuscripts and in issuing publications, and given the advances of the Indiana Medical History Museum, the future bodes well. Widespread participation and support are essential to future successes."

Over 17 years and untold manhours. That's what CyCare has invested in the study of health care. We've long since earned our diploma. While many aspiring competitors failed to make the grade.

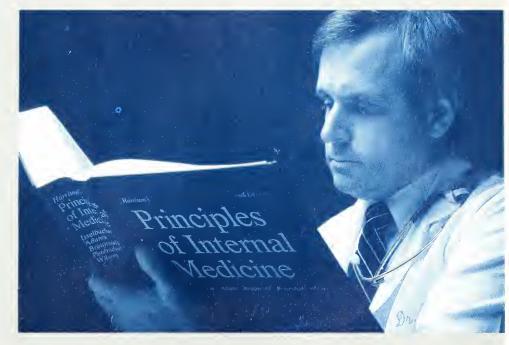
We chose one specialty. The delivery of health care is a specialized business. Your data processing company should understand it thoroughly. That's tough to do if they're also marketing to banks, factories and the like.

From the beginning, CyCare decided to commit only to the medical industry. Our staff of over 600 has been living and breathing it ever since.

Experience only CyCare can claim. CyCare has studied with thousands of physicians, administrators, and nurses. We've worked with nearly 850 clients of all specialties and size. In 17 years, we've treated data processing challenges of every kind.

You know experience is the best teacher. So choose a company that's been around long enough to learn.

Our knowledge benefits you. Our experience taught us that each client is different. We designed systems that easily accommodate any type of case. We learned you didn't want useless "bells and whistles", so we developed practical software that enhances the delivery of patient care. We discovered the fear of system obsolescence. So we created modular systems that can be expanded at any time.



Learning never stops. Like you, we never stop learning. We invest more in rescarch each year than most of our competitors gross in sales. We listen to your idcas, look for new ways to improve your practice, and stay abreast of industry needs. It's the only way to take the lcad.

Compare our credentials. Examine CyCare thoroughly. Demand as much from us as you demand from yourself. Look at our experience, our financial stability. Examine our products and talk to our clients. Find out why CyCarc is the leading supplier to medical group practices, HMOs and ambulatory care facilities nationwide.

Put us to the test. We're prepared.

Ask about CyCare's C100 APPOINTMENT SCHEDULING. The physician time management system for small and medium size practices.

- ☐ Rush free details to me about CyCare.
- ☐ Have a representative contact me. My business card/letterhead is attached.

No. of Phys.____

Mail to: CyCare, 520 Dubuque Building Dubuque, Iowa 52001 319/556-3131

IM-4-85

Sales and Service Offices:

Atlanta, GA; Cherry Hill, NJ; Chicago, IL; Dallas, TX; Denver, CO; Miami, FL; Minneapolis, MN; New York, NY; Portland, OR; San Diego, CA; Spokane, WA; Canada: Toronto, Ont.

Authorized WANG National ISO



In Memoriam: Arvine G. Popplewell, M.D.

Dr. Arvine G. Popplewell, 61, an Indianapolis physician who served as president of the Indiana State Medical Association from 1978 to 1980, died Feb. 8 at St. Francis Hospital, Beech Grove.

Dr. Popplewell, a specialist in pulmonary diseases, was a 1946 graduate of I.U. School of Medicine.

Before becoming ISMA president, he had served as ISMA treasurer and as a Marion County Medical Society delegate. At the time of his death, he was an AMA alternate delegate and was president and chairman of the board of American Physicians Life Insurance Company.

Dr. Popplewell was superintendent of the former Marion County General Hospital (now Wishard Memorial)



Dr. Popplewell

from 1956 to 1975. He established Med-Chest, Inc., a private pulmonary disease clinic in Indianapolis, in 1976. He served as a professor with the Dept. of Medicine, I.U. School of Medicine, since 1973, and had been medical director of respiratory therapy at University Heights Hospital.

Among his professional affiliations were the American College of Chest Physicians, American Thoracic Society and the American Society of Internal Medicine.

In 1977, Dr. Popplewell received the Murray Auerbach Award, given annually for outstanding service in fighting tuberculosis and other lung diseases. In 1979, he was appointed by former Gov. Bowen to the Statewide Health Coordinating Council.

A Special Tribute to 'Pop'

I sat near the back of the assembly during the opening session of the House of Delegates during the annual convention of the Indiana State Medical Association in 1976. We were meeting at the Hilton Hotel, Indianapolis, that year, and the speaker had called for nominations for the office of treasurer. A delegate from Marion County—Dr. Hugh Thatcher, I believe—approached the microphone and said in the usual parliamentary tone, "I wish to place into nomination for the office of treasurer, the name of Arvine G. Popplewell."

It was, for me, the beginning of an association that has enriched my life with a blessing of friendship, fatherly counsel, an example of leadership, such that I have none other with which to compare. That meeting in 1976 was the beginning for me as vice speaker of ISMA and an opportunity to work closely with a man

that I had known before only as a student. I had always perceived him as a man who was quite stern because his pictures always looked that way. I was quite pleasantly surprised when I found behind that apparent look of sternness, was a man with gentle kind ways and a heart that reached out to everyone around him.

Dr. Popplewell was a physician with extraordinary skills in administration. His work at General Hospital is renowned to all who have reviewed the significant contributions that he made to that institution, and the programs that were initiated during his tenure as superintendent that grew to be exemplary of his vision in a hospital system that is now recognized as the fine institution bearing the name, Wishard Hospital.

The contributions that Dr. Popplewell made to ISMA earry the same stamp of identity, because this man

had only one way of doing things. He dedicated himself to a task completely and put his whole heart into the effort of making good things happen for all of us who practice the art of medicine, whether past, present or future. This gracious man had but one profile in life-he loved people, and those who were fortunate enough to share in this love, whether students, colleagues or patients, or even more tenderly, his children, all share a common relationship: They have known one of the single most perfect examples of physician, teacher, friend and father.

Arvine G. Popplewell led our state association of physicians as president of ISMA from November of 1978 through October of 1980, a longer term of service than any physician occupying this office in the recent history of our association. Those of us who served with him regarded him

as the most knowledgeable president ever to occupy that office. I, personally, continued to regard him as my source of ISMA history and policy on any item of business concerning our state association, and consulted his wisdom frequently on any issue calling for my decision.

Dr. Popplewell continued to give generously of his time following his

tenure as president, and served as the president and chairman of the board of American Physicians Life Insurance Company, and as an alter nate delegate to the American Medical Association. Even more endearing to those of us who have served in capacities of leadership and as members of the staff of ISMA, is the fact that Dr. Popplewell considered us all as his family and embraced us collectively with the warmth and dedication that is familiar to each of us who knew him.

It is impossible to say how much we miss him, for it is difficult for me to accept the fact of his absence. I can only say for all of us, "We love you, 'Pop.'" — Lawrence E. Allen, M.D., Anderson, President, Indiana State Medical Association

New Prescribing Rules for Home-Use Med Equipment

The HCFA revision of payment guidelines for Durable Medical Equipment (DME) payable under the Medicare program became effective Feb. 1.

The changes require that physicians provide more information than in the past on the DME prescriptions they write for Medicare-eligible patients.

Such prescriptions must now include the patient's diagnosis and prognosis, the reason the equipment is required, and the physician's estimate in months of how long it will be needed.

Where information is lacking on a

prescription, the medical carrier should be able to make reasonable inferences from other details on the prescription. If this is not possible and if the information is not obtainable from the carrier's files or from other readily available sources, the carrier must request the required information from the physician either in writing or by telephone.

If a certain type of product is medically required, such a need must be clearly stated on the prescription, together with the reasons (e.g., liquid oxygen as opposed to high pressure tanks to support therapeutic ambulation or special add-on equipment for a wheel chair). Supply companies can help determine when this may be required.

Medicare Part B pays for Durable Medical Equipment that (1) can withstand repeated use, (2) is primarily and customarily used to serve a medical purpose, (3) generally is not useful to a person in the absence of illness or injury, and (4) is appropriate for home use. The equipment may be rented or purchased.

The method of deciding whether to buy or rent DME has been changed. Although the basic decision still rests with the beneficiary, the choice is not binding on Medicare as far as payment is concerned. Payment depends on the medical carrier's determination regarding the least costly method (except for items costing less than \$120, which must always be purchased).

Maintenance of purchased DME is not covered and is an obligation of the patient. If a patient cannot handle the maintenance, a statement to that effect, with reasons, must be included in the prescription. It is believed that Medicare will continue to allow rental that includes repair and maintenance.

This information has been abstracted from instructions prepared by Daniel K. Wil son, Regional Reimbursement Coordinator for National Medical Homecare, a division of National Medical Enterprises, Inc.

The EPSDT Program: A Progress Report

WILLIAM L. MANNING Indianapolis

ago, you began hearing of a new emphasis on child preven tive health services under the auspices of the state's Medicaid program. Many primary care providers were contacted and asked to participate. Dubbed the Early and Periodic Screening, Diagnosis, and Treatment (EPSDT) Program, it offers multiphasic medical screening as well as needed diagnostic and treatment services to Medicaid-eligible individuals under 21 years of age.

The cooperation of the medical community in providing EPSDT services has been pivotal in establishing the early successes of the program. The partnership between government and health professionals has had a dramatic and positive impact on Indiana's children.

Background

In 1983, the Indiana State Department of Public welfare entered into a contract with Automated Health Systems, Inc. (AHSI) to manage the program and to organize a resource network of primary care physicians throughout the state who would provide services to eligible children. Although EPSDT has been a mandated portion of each state's Medicaid program since 1967, it wasn't until 1983 that the program was awarded renewed emphasis in Indiana. At this time, the state established new EPSDT reimbursement policy and

AHSI contacted and recruited a wide array of primary care practitioners. Presently, more than 360 physicians and clinics are EPSDT providers.

EPSDT and Medicaid: Related Yet Separate

EPSDT has many features which make it fundamentally different from the Medicaid program, and which are atypical for most public assistance programs. EPSDT's penultimate goal was to make primary and secondary preventive health services available to the most needy children in the U.S. Its ultimate design was to improve the overall health status of poor children, thereby lowering medical costs. By contrast, the Medicaid program's general design was to increase the poor's access to medical care by paying the bills, with little attention given to improving health indicators.

Since 1983, Indiana's EPSDT program has called for aggressive recipient outreach and informing, streamlined data case management, and the use of various types of health care delivery systems. In the last year and a half, over 78,000 Medicaid recipi-

FIGURE 1

ents have received verbal explanations of program benefits and more than 134,000 have received written program materials. Screening guidelines reflect those suggested by the American Academy of Pediatrics; and virtually every Indiana county has an EPSDT provider available to deliver services to eligible children.

Another major difference between EPSDT and Medicaid is the organized referral tracking and case management components of the program. Unlike Medicaid, EPSDT keeps track of each child who receives health services under its auspices. As a result, services are more comprehensive and appropriate, and children have a greater chance of receiving the additional care they need. Consider the following examples of children screened through EPSDT:

- A 2-year-old boy from Boone County was found to have advanced dental problems and displayed symptoms and history related to speech retardation, all previously undetected. Working and communicating with the screening physician, the EPSDT referral unit linked the family to a local Disability Services program for specialized evaluation and care.
- A 2-year-old boy in Fort Wayne displayed pronounced developmental delay and hearing difficulty. After more than three months of joint efforts to contact the caretaker, the provider and the EPSDT referral unit succeeded in linking the family to a developmental center. The child is currently enrolled in a specialized program.

Efforts such as those outlined above, while exhaustive, can only be instituted for EPSDT-enrolled children. Non-participating Medicaid-eligible children can not be tracked in

The author is Program Director, Automated Health Systems, Inc., 3901 W. 86th St., Suite 425, Indianapolis, Ind. 46268.

this way, and many undoubtedly have health problems which are either not detected or not treated in time.

Screening Services and Provider Mix

EPSDT screening procedures are multiphasic, consistent with AAP recommendations, and are unique in comparison to more traditional screening programs. (For a copy of procedures, contact AHSI at (800) 732-1446.) During the last year and a half, procedures have been updated and other services, available only to EPSDT-participating children, have been added, such as routine referral to an eye practitioner for a comprehensive eye exam. The initial assessment package includes comprehensive unclothed physical, developmental screening, routine lab work, vision/hearing testing and immunizations. Additionally, other screening tools are employed for children in specific risk categories (e.g., testing for sickle cell trait or lead poisoning).

In more traditional screening programs, such as well-child conferences or school health programs, the settings are seldom related to diagnostic and treatment sites. This is a drawback in that many patients fail to follow through with a planned referral-a situation aggravated by fragmenting the delivery process. The separation of screening from treatment, and preventive from curative services undermines the whole continuity of care premise so crucial to quality health services. By contrast, EPSDT in Indiana supports continued interaction with the same provider.

Exemplifying this is the case management system administered by AHSI. When a medical problem is suspected as a result of the EPSDT screening, the provision of treatment is routinely coordinated. The screening physician communicates to the referral unit instructions on how to proceed with the treatment follow-up (i.e., if the physician wishes to treat

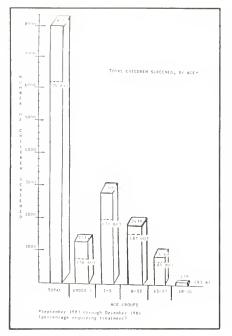


FIGURE 2

or if referral to external resources should be made). Additionally, the family, for as long as they are eligible for Medicaid, is routinely notified whenever periodic examinations are due. This aspect of case management is beneficial to provider and patient alike, in that care becomes more regular and is less fragmented.

AHSI realizes that a fundamental role of the primary care provider is to foster the overall development of children under his supervision. Consequently, EPSDT is dependent upon primary care physicians and other related professionals, who are servicing Medicaid-eligible children, to assume the responsibility of prevention and evaluation of disease. To actuate this, and to enlist enough interested providers, AHSI began contacting health care professionals throughout the state. A healthy mix of specialties was established, as summarized in Figure 1. EPSDT providers currently number over 360.

State EPSDT regulations stipulate that any individual physician, physician group practices, hospitals, or physician-directed clinics, who are enrolled as Medicaid physicians and who possess all the equipment necessary

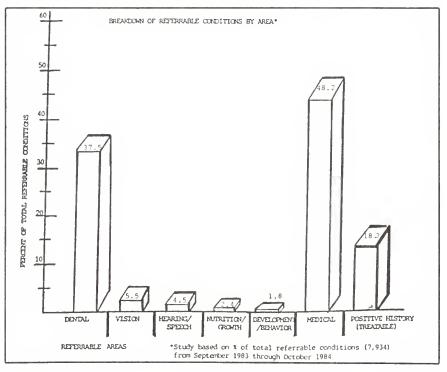


FIGURE 3

to perform an EPSDT exam, may be enrolled as an EPSDT screening physician. In addition to these groups of physicians, scores of dentists, optometrists, and specialty practitioners who accept Medicaid patients support the program by offering specialized diagnostic and/or treatment services.

Has EPSDT Made an Impact?

Ideally, a screening program is only effective to the degree that it both uncovers illness reliably and allows for the remediation of the disease and disabilities found. Aside from improving the health status of the target population, measurement of cost-effectiveness is of great concern to taxpayers and service providers alike. Although Indiana's EPSDT program has only recently begun to provide data to allow for evaluation, other states' programs (i.e., Michigan's) have documented an impact on health status and health care costs. Empirically, health status appears to improve with more routine screenings; and health care costs of participating vs. non-participating Medicaid children were significantly lower. Figures 2 and 3 illustrate screening data from Indiana's program over the last 18 months. Figure 2 displays, by age group, the number of EPSDT screens performed and the percentage indicating the need for further evaluation and/or treatment. A breakdown of all referrable conditions, by area of evaluation, is provided in Figure 3.

One can assume from these data that EPSDT is uncovering a great deal of illness; and that the partnership between the provider and AHSI's case management unit is helping the patient pursue needed follow-up. Whether disease has been expunged and disability remediated remains to be seen. However, it is also safe to assume that the program's efforts combined with those of EPSDT providers make it more possible for the child's caretaker to follow through with a planned referral.

Conclusion

After a year and a half of EPSDT

in full force, several things have become evident. The program is reliably uncovering disease and disability. Of more than 8,300 screens performed, approximately 75% indicated the need for further diagnosis and treatment. More importantly, though, the program is demonstrating that a partnership between the physician community and government is not only feasible, but is having a dramatic and positive impact on Indiana's Medicaid-eligible children. It is equally important to stress that the cooperation of Indiana's medical community has kindled the early success of EPSDT and will play a crucial role in its continued survival.

REFERENCES

- Foltz AM: An Ounce of Prevention: Child Health Politics under Medicaid. MIT Press, Massachusetts, 1982.
- Keller WJ: Study of selected outcomes of the Early and Periodic Screening Diagnosis and Treatment Program in Michigan. Public Health Reports, 98:2, 110-119, 1983.

Look-Alike and Sound-Alike Drug Names

BENJAMIN TEPLITSKY, R. PH. Brooklyn, N.Y.

Look-alike and sound-alike drug names can be misinterpreted by a nurse reading doctors' orders or by a pharmacist compounding physicians' prescriptions. Such misunderstandings can result in the administration of a drug not intended by the prescriber. Awareness of such look alike and sound-alike drug names can reduce potential errors. Category:

Brand Name: Generic Name:

Dosage Forms:

Category: Brand Name:

Generic Name: Dosage Forms: CHYMEX

Solution

Diagnostic aid (pancreatic exocrine insufficiency) Chymex, Adria Bentiromide

TERBUTALINE Bronchodilator

Brethine, Geigy Bricanyl, Merrell Dow Terbutaline Sulfate Tablets, Injection CHENIX

Cholelitholytic agent

Chenix, Rowell Chenodiol Tablets

TOLBUTAMIDE

Antidiabetic Orinase, Upjohn

Tolbutamide Tablets

BROWN THE BROWN PHARMACEUTICAL CO., INC.

2500 West Sixth Street, Los Angeles, CA 90057

For Full Prescribing Information, Please See PDR.

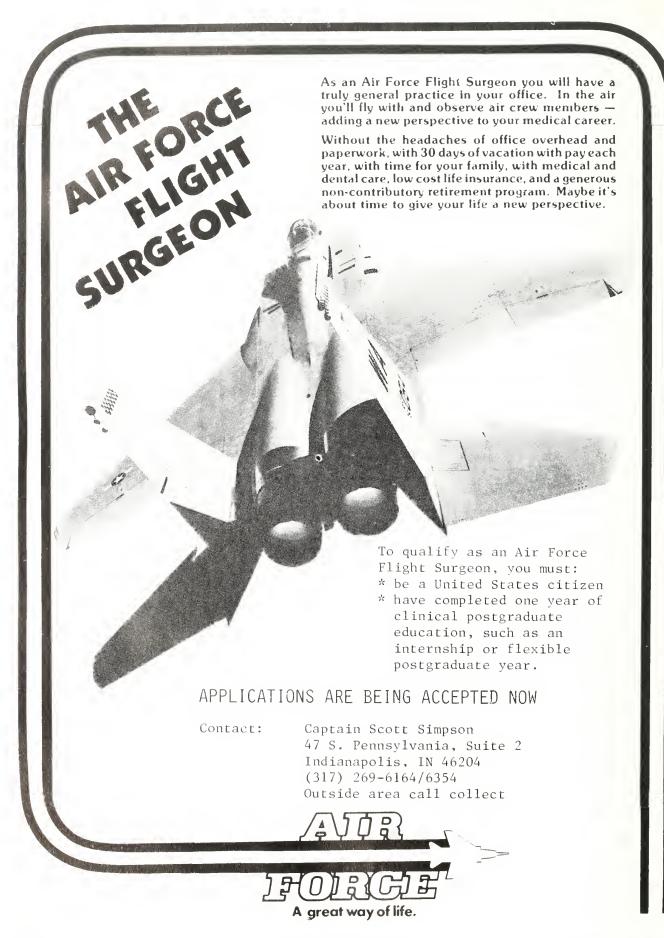


Android 5 Buccal 10 Oral 25 Mg. / 10 Mg / 25 Mg. Methyltestosterone U.S.P. Tablets

ANDROID F

Fluoxymesterone U.S.P. Tablets, 10 mg.





How Your Practice Can Cope with Change

Medical Practice Management

LEIF C. BECK, LL.B. GEOFFREY T. ANDERS, J.D. DOROTHY R. SWEENEY

Essential Advice
for Physicians Who
Want or Need Their
Practices to Survive
Indefinitely:
'The Best Way
to Manage Change
Is to Anticipate It'

HILE SO MUCH is written these days about the future of medical practice, many physicians seem to ignore clear indications of change. This may be understandable in view of their continued clinically and financially rewarding practice situations. After all, who wants to give up a good thing merely because of predictions that things may change? "If it ain't broke, don't fix it," goes a popular saying.

That saying may be fine for doctors who have worked hard to build a very good practice; they can probably ride out the era of change, though quite possibly with declining income, for five to 10 years. If, however, they are between age 30 and 50 or if they care enough to assure continued practice success indefinitely, the changes in medical practice must be considered and accommodated.

At a recent seminar, one speaker made the following point: "The best way to manage change is to anticipate it." We consider this statement to be absolutely essential advice for physicians who want or need their practices to survive indefinitely. Since changes are so obviously under way, and far more change is still to come, physicians should stay closely attuned to what will probably happen.

General Conditions

With this background, here are our views on the direction of medical practice. They are not comforting to doctors who are emotionally or financially committed to the way things

have been, but we believe these directions are virtually unalterable.

1. Capacity to Pay

Perhaps most significant of all, there is a clear squeezing of our national capacity to pay for the level of health care which the public has come to expect. The "entitlement" thinking of the 1960s, when the nation seemed wealthy enough to afford all sorts of benefits, has shifted to the 1980s—when our national wealth has essentially leveled off. Health care is buffeted within this much greater economic/sociologic fact, and one cannot assume any solution allowing constant growth.

Thus we have seen the beginnings of approaches designed to limit health care expenditures. DRGs and the recently enacted freeze on physicians' Medicare fees are clear examples of such efforts, as is governmental support and encouragement of alternative delivery systems such as HMOs.

And who knows what will be the next, possibly much more permanent, proposed "solutions" to the economic squeeze. Perhaps capitation (payment per patient rather than per procedure) will be imposed on doctors' services. Perhaps uniform fee schedules will be imposed by the federal government and/or by insurers and employers, just as we are already encountering a national schedule of lab fees.

We consider one development nearly certain. The fees paid for "noncognitive procedures" will decrease

Copyright © by the authors, January 1985. The authors are the principal consultants and attorneys of The Health Care Group, 400 GSB Bldg., One Belmont Ave., Bala Cynwyd, Pa. 19004.

significantly, as virtually all segments of society seem to agree that procedure fees are far too high. Open heart surgery, intraocular lens implantations, cardiac catheterizations and fiberoptic procedures are examples of allegedly "overpriced" services.

2. Governmental Pressures

While many people predict a continued growth in governmental regulation of private medical practice, we see it a bit differently. We instead expect government's effort to be in creating the conditions that will make medicine less economically rewarding. DRGs, fee schedules, HMO support and "all payers" limits on reimbursement levels are not so much regulation as they are pressures on practice economics.

Regardless of what one calls it, however, government is the "big daddy" directly and indirectly influencing doctors' incomes. There is little hope of effectively curbing that influence by court action, for physicians hardly have a constitutional right in their economic well-being. If government can regulate banks, control natural gas prices and impose laws on corporate take-overs, all of which are understood to be for the public's benefit, it can also affect medical economics.

3. Increasing Supply

Like another arm of the pincer, these restrictions on the *demand* for medical services come at a time of tremendous increase in the supply of those services. The number of physicians in practice now is vastly higher than before and the predictions for 1990 provide a still higher number. While doctors tended to dismiss the projections just a couple of years ago, almost all of them now see the continually increasing number of "colleagues" – or "competitors" – in their specialties.

The pincering effect means that conflict is virtually inevitable at the physician level. It will probably result in the virtual annihilation of some ancillary medical occupations such as physicians' assistants, respiratory therapy and the like; doctors may be happy to do those people's work in view of the available time and the need for income.

4. Resulting Competition

These various circumstances certainly show why competition among medical providers is becoming rampant. The pincers of a shrinking pot invaded by a growing number of fingers virtually pre-ordain such competition no matter how noble the profession may be.

Much of the competition comes from so-called alternative providers. HMOs are developing virtually everywhere; physicians in town after town hold discussion sessions to consider how they should cope with actual or rumored HMO incursions. HMOs now have some 20 million patients and are predicted to have 50 million by 1993. That's a lot of patients chopped off private practices' rolls.

The convenience facilities ("urgicenters," and "immediate care centers," among other titles) are also doing quite well. We know of some practices badly affected by the expanded hours and aggressive marketing which nearby facilities feature. Those new facilities are providing a feature important to consumers these days—"convenience."

Hospitals are themselves delving more and more into medical practice even though it may be technically illegal. In their battle to survive, vertical integration of health care services becomes one of their possible salvations. And that integration injects hospitals right into the privately practicing physicians' turf.

But physicians' main competition comes from other physicians. Specialty-crossing is rampant as doctors seek to provide more services that might maintain their incomes, witness allergy and facial plastic surgery. Advertising is on the rapid rise and will almost inevitably continue to grow. And as "premier groups" contract for bulk patient care (discussed later), the patients gained are lost by other privately practicing doctors.

5. Antitrust Law: The Big Leagues

A prime example of inter-doctor competition and turbulence is baring itself these days. Medicine has entered the business world enough to be the hot topic in antitrust law.

Medical staff admission and privileges are vital issues for doctors on both sides—both the "ins" and those who seek to be "in." There are a number of cases which are widely known to lawyers and physicians. These cases involve millions of dollars in legal fees as well as untold potential liability if they are ultimately decided in favor of the plaintiffs involved.

Even though hospitals are co-defendants in these various lawsuits, physicians may themselves be at risk. In fact, since their medical staffs may be held liable separately from their hospitals, it is becoming essential to legally separate and incorporate the staffs. Doctors can no longer hide behind their hospitals' skirts.

Antitrust law arises in non-hospital practice situations as well. For example, while we have participated in more group mergers than ever before, some of these joinders touch the ill-defined and still rather conjectural antitrust rules as they might apply to health care. And yet antitrust suits are so expensive and, if lost, so economically devastating that doctors cannot take chances. Physicians are in the big leagues of business when those laws are involved.

Our Prescriptions

What should the currently successful practicing physician do within this rather bleak description? Except for those who elect to ride their practices out for five or 10 years, probably with declining patient volume as they move

to retirement, we believe doctors should emphasize our opening key statement: "The best way to manage change is to anticipate it."

The changed conditions offer opportunities as well as problems. In the airline and steel industries, some companies are suffering and even dropping out while others take advantage of the conditions. We see the same scenarios in medicine, for some practices are growing and prospering despite the conditions. They have adapted to the changed game while still giving the same high quality medical care.

Here are some of the major approaches and basic philosophies we believe are essential for such success:

a. Business Planning

Doctors tend to resist the idea that hard-headed business planning makes sense in their professional practices. It cannot, however, be disregarded and it cannot be done half-heartedly.

The first part of business planning is to identify the broad goals and how they fit into both present structure and projected financial resources. The goals cannot be all-encompassing, for we find it necessary these days to establish areas of preeminence even if other areas must be abandoned. For example, internists may have to decide if they are to be primary care doctors or referral specialists; it is becoming harder to be in both camps and prosper in either one.

As to the finally agreed planning document, there must be a reasonable consensus among the practice's players. In a solo practice, at least the manager and key staff members should accept the goals, while all physician-members of a group practice should be comfortable with the major directions. Those who are unwilling to accept and work within the business plan's broad goals should probably not stay with that doctor or group. Interestingly, business plan goals tend to be self-fulfilling to the extent that people's day-to-day ac-

tions reflect those goals.

Secondly, from the broadly stated plan should come *special strategies* to be followed in order to achieve the goals. What steps will be taken, whether moving one's office, replacing certain personnel, promoting certain aspects of the practice or opening a satellite office? And on what timetable?

As an example of this second phase of business planning, we recently followed up on a survey we had performed for a larger group practice six months earlier. The managing partner reported that the group had identified six primary goals and then set out over 60 specific actions to be taken. The likelihood of actually achieving their broadly stated purposes should be distinctly greater with that 60-item action plan in place.

b. "Market Share"

Given the competitive threats and the uncertainties for the next few years, we are urging an emphasis on "market share"—a practice's volume of patients as measured against the total available volume. This is not the time to lose patients, for we expect the next few years to be tolerable mainly for those doctors who have a large market share.

The larger number of patients will enable a practice to keep its income up as well as possible if the fees begin to drop. Market share will certainly permit maximum possible income if the system shifts over to a capitation—payment per patient—basis. And as we see doctors and groups negotiating with hospitals, HMOs and directly with employers, a larger volume practice should translate to greater negotiating strength.

Therefore, even if a physician must accept a lower fee on some current patient work, the lesser payments may be preferable to losing those patients—to losing "market share." We have therefore generally favored participation in HMOs and PPOs as a means of holding onto patient volume

rather than ceding the work to others. We also encouraged participation in Medicare unless the financial circumstances were too adverse; those doctors who elected not to participate now face the risk of adverse publicity and a possible decrease in patients.

c. Marketing Emphasis

Closely related to the "market share" point, the entire field of marketing has become a key element in one's practice. Marketing is, however, a far broader term than mere public relations and advertising. It involves attention to one's business from the other person's—the consumer's—point of view.

One attribute of successful business corporations is that they are "consumer driven." They focus on anticipating and selling what the consumer wants and needs, rather than on selling what they (the sellers) want to sell. Most major new products and services originate this way—from identifying the potential buyer's preferences rather than seller's interests.

But how does being "consumer driven" apply to physicians? As one example, we believe that health care consumers are in large part business employers, labor unions, insurance companies and the government—not individual patients. These organizations are purchasing most of the health care which physicians provide through patients. The one thing these major purchasers must have is a basically controllable and definable cost structure consistent with quality service.

Unfortunately, physicians have notoriously resisted adapting to this need, equating cost controls and fee restraints with compromises on quality of care. The better approach would be to seek ways the big purchasers can be assured as to their expense levels while maintaining normal emphasis on quality. If this means that a doctor or group might have to accept less than full fee work in order to serve a larger block of patients,

that should be a good step.

Another example involves a demographic characteristic sometimes called the "nocturnal market." Goods and services are increasingly being demanded outside the traditional "9 to 5" hours. The banking industry has recognized this characteristic in a unique way, establishing automated teller machines which make bank services available 24 hours a day, seven days a week. Physicians, however, are only now beginning to shift to evening and weekend office hours. Not being consumer driven, private practitioners have preferred office hours that suited their busy lives, and until recently they had been able to call the tune.

d. Group Practice

Unfortunately, we do not see solo practice as the way to cope with change over the long run. We have in fact predicted that there will be significantly fewer solo and even small group (two to five doctors) practices about 10 years from now.

The trend toward larger practices, both single and multi-specialty, is already apparent. Groups can better allocate physician time to early mornings, late evenings, weekends and holidays than can a solo; one physician simply cannot be available all the time but a 10-doctor group can easily provide convenience center hours.

The larger group can also spend more meaningful dollars. It can afford to hire a high-salaried administrator with an MBA degree to help steer it through complex contract negotiations. It can purchase state-of-the-art medical equipment to keep it on the

cutting edge of its specialty. And it can maintain a large enough P.R./ advertising budget to bring in additional patients, while solos spending small amounts may be unable to dent the ad market.

We expect groups to jump in size from three to six doctors up to 10 and 15 members over just the next few years. But all the practices in a service area cannot grow. In fact, the opportunities to establish the described advantages will probably arise just once in each specialty in each community. Once a group has done so, there will probably not be room for its competitors to adapt.

e. Physician Leadership

One factor in practice management never changes: Whether solo practice or group (large or small), there must be effective leadership at the physician level. Success emanates from a doctor-owner's ability to set the proper tone for the entire practice; conversely, we often point out that every failure or weakness can and should be the fault of the practice's "CEO"—its chief executive officer, or the doctor in charge.

For the solo practitioner, he or she must first identify the practice's characteristics and assure that everyone concerned will conform to them. This CEO-physician must create a consistent atmosphere so the lay staff will act according to the selected goals. Planning and strategy are useless if the doctor-leader cannot or will not cause all concerned to act consistently with the business plan.

And we find that group practices, even those with just two or three doctors, require a strong and capable teadership format to accomplish what is within reach. The most desirable structure is for a single "CEO," just as other businesses thrive or fail because of their leadership. In some practices, however, where no single physician-member fits the CEO slot a different leadership model may be necessary. This will usually be a two-or three-doctor "executive committee" specifically authorized to act as though those two or three people were together an individual in charge.

Businesses do not survive these days without good leadership, and medical practice is becoming less unlike other businesses. Doctors wishing to adapt to the changing health care scene need a leadership format—usually a "CEO"—in order to cope.

Conclusion

As described, the circumstances for privately practicing physicians are less favorable than anytime in the past 20 years. The health care industry is not, however, alone in encountering new, rapidly changing problems. As in other business situations, these problems create opportunities as well as annoyances. We thus see some doctors making their practices prosper within the parameters of quality patient care by being alert to the circumstances and applying modern management skills to take advantage of them.

These successful practices seem to live by a minor variation in our previously recited key sentence:

"The best way to manage in a changing environment is to anticipate and face head-on the change."

What's the Matter with Getting Old?

Commentary

HE AUTHOR, who has just turned 65, is not in a serene and reflective mood as he contemplates his age and status.

What's the matter with getting old? There must be something wrongbecause nobody wants to call old "old." Babies are called babies, kids are called kids, teenagers are called teenagers (and various other opprobriums). Young people are called young. Middle-aged people are called middleaged. But "old people" are called senior citizens, or retirees, golden age persons, and other such. I say a plague on those jargon words and cuphemisms. I don't want any of those chicken words applied to me! Old, by God, is old! And I am proud of it. It took me a lot of time and determination to get this far!

They even have a bunch of patronizing national organizations for us old people! Some of these organizations' names are Golden Ring Council of Senior Citizens, Gray Panthers, National Association of Mature People, the National Alliance of Senior Citizens, etc. And all of these groups seem to have their publications, which include the Senior Citizens Post, the Senior Citizens Voice, the Prime of Life, the Golden Rain, the Golden Times, the Gray Panther Network, etc, etc.

The old folks organization you hear the most about is called AARP. Pronounce that word AARP out loud twice to yourself and it sounds like a dog with a speech impediment. This



PHILIP BALL, M.D. Muncie

AARP appears to be pointed at old people, but the name of the organization is the American Association of Retired Persons, and it includes anyone over 50. What kind of confusion is this? The world according to AARP! This AARP group has a magazine it calls *Modern Maturity*. If you translate that from their jargon, it means "today's old age."

Some of these organizations pointed at old people talk of "creative retirement, the golden years, elder care, senior citizens group therapy, elder hostels." All kinds of jargon! I say old is old!

I intend to start a group called "The Brotherhood of Old People," which will be abbreviated BOP. This will be a national organization of us old people banded together to maintain our dignity and spunk. I am going

to have a publication for this group that is going to be called *Scusible Sendity*.

This magazine will have various regular departments to help build up the image of us old people to ourselves. These departments will have plain blunt names. One section will be called "Food and Booze." Another one will be about "Appropriate Profanity," which will explain the value of useful profanity in venting the spleen and aiding digestion and clearing the emotions of old people. Another section will be called "Matters of Passion" and will talk of various things, including the possibility of passionate encounters in retirement centers and nursing homes, and it will discuss the benefits of sex in reference to heart disease, arthritis, Parkinson's disease. Alzheimer's syndrome, etc.

There will also be a section called "Aphrodisiacs After 65," which will outline love potions that are safe to use after 65 without blowing a gasket. The magazine will have a "Short Story Department," which will have only stories about bosom, thigh, and jock. The magazine will also have a section on "Martial Arts for the Mildly Disabled" that will tell how to disarm, sterilize, and paralyze a teenaged would-be mugger with one blow.

The magazine will also have a section on "Unions" that will include data on how to organize and unionize nursing homes, senior citizens retirement centers and take over control from well-meaning but misinformed younger people. It will also tell how to organize strikes demanding bidets

Correspondence: 2600 W. Jackson St., Muncie, Ind. 47303. and dating rooms in nursing homes. Sensible Senility will include a section called "Polls," which will detail especially how to get out the vote for our old folks' candidates and will include data on where to rent buses with toilets and wheelchair lifts and HBO television and 8-track sound so that we can get old folks to the polls in style.

I will probably have a section in

my magazine that will be called "Old Richard's Almanac" that will include some maxims and rules for old people to live or to think by; for example: Never do today what can be put off until tomorrow or fobbed off on some young person; the young early bird gets worms, but who needs them? You can catch more flies with flypaper than with honey; early to bed and early to rise is very boring.

My old folks organization (The Brotherhood of Old People) will be organizing teams in all of the common spectator sports, including hockey, basketball, football and soccer. The teams will be ealled the Funky Fogies and will be taught how to win by playing dirty.

So don't try to put me on or put me down, and don't try to patronize me, junior! I wasn't born yesterday.

Dx: recurrent herpes labialis

"HERPECIN-L is my treatment of choice for perioral herpes." GP, NY

"HERPECIN-L appears to actually **prevent** the blisters . . . used **soon enough."** DDS, MN

"HERPECIN-L®...a conservative approach with low risk/high benefits." MD, FL

"Used at prodromal symptoms . . . blisters never formed . . . remarkable." DH, MA

"(In clinical trials) ... response was dramatic. HERPECIN-L.. proven far superior." DDS, PA

"All patients claimed shorter duration . . . at prodromal symptoms . . . HERPECIN-L averted the attacks." MD, AK

Herpecin-L

Herpeein-L Lip Balon Sig: Q.h. Sig: needed

OTC. See P.D.R. for information. For samples to make your own clinical evaluation, write: CAMPBELL LABORATORIES, INC., P.O. BOX 812-MD, FDR STATION, NEW YORK, N.Y. 10150

In Indiana HERPECIN-L is available at all Hook, Osco, Peoples, Revco, Ribordy, SupeRx Drug Stores and other select pharmacies.

More than 50,000 reasons to buy your Professional Liability Insurance from the Leader.

Your peers. More than 50,000 physicians and surgeons countrywide who are insured with St. Paul Lire and Marine Insurance Company.

They know that The St. Paul is the nation's leading medical liability insurer and they know why. With more than 40 years of experience in the medical market, we offer a superior, Hexible, comprehensive insurance protection plan. Take a look for yourself.

Our professional hability policy provides Hexible limits to meet your own needs—individual limits of up to \$10 million. And there are no policy exclusions. All this and very competitive rates for Indiana physicians!

Nou may also want to select our optional Professional Office Package for your other property and liability insurance needs. And, no matter which coverages you choose, you'll receive the best possible claim-handling services available with local attorneys and our Indianapolis and South Bend offices. Not to mention our loss prevention risk management services which have established the industry standard!

So talk to one of the 167 Independent Agents representing The St. Paul in Indiana. And do it for the reasons that you like best.

Equipped to meet all your insurance needs.



Medical Services Division





St. Paul Fire and Marine Insurance on pany St. Paul Mediury Incidence in the Qt. Per University Control of Per Countrian Legacy Control of Paul Indian St. Paul Indian St. Paul Indian Control of Paul Indian Africa of Control of Paul Minnesota 56102

EDITORIALS

Fee Discounts and PPOs

Most physicians are aware that they do not know enough about HMOs and PPOs. Panels, discussion groups and seminars are organized to educate the profession on the newer types of med ical practice.

However necessary such indoctri nation proves to be, there are other elements in the medical care setup that should be studied by medical practitioners.

"When hospitals create preferred provider organizations (PPOs) as at tempts to offer discount health care prices and protect their market share, they are flirting with disappointment or failure."

So writes J. Philip Lathrop in Modern Healthcare magazine. Lathrop is a health care consultant for Booz, Allen & Hamilton, the world's largest management consulting firm.

Any provider or consumer of med ical care may set up a PPO. Hospitals are interested in them since they tend to offer a defense against the lowering of hospital admissions by HMOs. If all the hospitals in an area create PPOs they will all, in effect, offer discounts with a view to increasing admissions and revenue.

Lathrop shows that there is a dramatic relationship between price discounts, market share and profitability. "A 10% discount to an employer must be accompanied by a 75% increase in

business to maintain the hospital's overall profitability," he says.

Since the success of a hospital PPO depends on a large number of patients, each PPO hospital must organize a sales force to canvas the industrial market. Outside of a few big employers, most of the jobs are in firms with fewer than 200 employees. The sales force, big enough to adequately attend to the enlistment of a large number of relatively small businesses, will in most instances prove to be too costly—the venture will probably cost more than it will bring in.

Lathrop thinks that the hospitals least likely to succeed in the PPO race are those in large metropolitan areas where substantial market penetration is difficult or impossible. He also cites hospitals of more than 400 beds with teaching programs and other hospitals surrounded by a great number of organizations with less than 200 employees as not likely to succeed.

Lathrop pointed out that hospitals in the upper 25% of the cost and price structure in their market, even after case-mix adjustments, will have difficulties with PPOs.

The basic rule in his entire discussion seems to be, "Fee discounts are not a long-term solution to the problem of survival."

Alcohol and Injuries

Recent studies of alcoholism have revealed that the consequences amount to more than hangovers and lumps on the liver.

A collective review in *Annals of Emergency Medicine* discusses alcohol consumption and its causative relationship to injury. Such common "accidents" as auto wrecks, falls, drownings, homicides, suicides and burns may have and often do have alcohol as the immediate cause.

The enormity of the problem is emphasized by the observation that, while injuries now rank as the fourth leading cause of death in the U.S., death by alcohol-induced accident occurs most often in the younger seg-

ment of the population; such accidents cause the loss of more years of life than do the diseases which occur oftener but in older persons.

When ranked not by number of deaths but by the years of unnecessary loss of life, accidents may be No. 1. Anything that is done to control and moderate the social use of alcoholic beverages will lengthen life expectancy to an unusual degree.

Don't drink and drive! Also don't drink and swim. And, take care about falls, inconsequential arguments and the danger of fire. Don't drink to cure depression—it's one of the causes of suicide.

Cost Containment Study Leads to Real Savings

The Cost Containment Project, announced in this publication previously, has achieved its objective.

The Emergency Medicine Foundation, with funding from the W.K. Kellogg Foundation, has conducted a three-year study of patient costs in emergency departments of 22 hospitals located in eight states.

The study, spearheaded by the American College of Emergency Physicians, started with determination of the most frequently ordered diagnostic tests and the most costly tests ordered. Seventeen test categories were then targeted for reduction through education.

"Diagnostic Tests" were singled out because they constitute the largest single component of patient costs in emergency rooms.

Based on the preliminary study, a 131-page handbook, "Guidelines for Cost Containment in Emergency Medicine," was published. The book contains examples, discussion questions, and advice dealing with pressures and environmental factors that influence test ordering.

The participating hospitals used "Guidelines" together with slides, posters and other teaching aids in a three-month educational program for their hospital staff members.

Within three months following the



educational program, the 22 hospitals saved an average of 10% on total diagnostic test bills. Extremity x-rays were reduced most often. Rib x-rays produced the greatest percentage of change in costs.

Total patient charges for these tests dropped 35%. Nineteen of the participating hospitals reported reduced costs regardless of differences in number of emergency patients, the severity of patient illnesses, or the percentage of indigent patients.

This is an example of a constructive study that was based on facts obtained by investigating the records. Record research is one of the most important methods of determining the pattern for improvement in patient care. The ACEP example might inspire similar studies in non-emergency diagnostic fields. There should be definite indications for the performance of all diagnostic events.

Strong Medicine Guest Editorial

In the November 5th issue of F-D-C Reports, some of author Arthur Hailey's observations on the drug industry before the PMA's Public Relations meeting at Greenbrier are reported. These comments result from his research of over a year on the pharmaceutical industry to produce what is now a best seller, "Strong Medicine." It is soon to be released in the *Reader's Digest* Condensed Books program. We urge you to get a copy and read it.

These observations are very telling in our opinion because they reflect a great deal of the problems as well as the successes of the pharmaceutical industry and require some thoughtful discussion on the part of everyone concerned to see that some of the problems are cured and we bring the benefits of the industry to their fullest fruition.

Arthur Hailey notes that the pharmaceutical industry has made tremendous contributions to mankind in terms of human health, etc. and says that in spite of this fact the industry

is overcriticized and praised much less than it should be.

He also calls attention to the fact that the industry has demonstrated itself to be incapable of effective self-regulation. He points out that government regulation has to exist and while it's necessary, sometimes it tends toward over-regulation. As a result, we delay the introduction of new products that may be lifesaving because we are overzealous in protecting the public from some problems that might arise from the risk-factor involved in releasing any drug to the market.

As he points out, no drug can be risk-free and almost every drug taken by a human being is an alien substance in the body and consequently the thing that must be decided in advance is whether the risks outweigh the benefits or the benefits outweigh the risks. We recall when we first started in the pharmaceutical business a good doctor told us as much, saying, "There is no such thing as a risk-free product. If it does you some good, the potential is always there to do you some harm."

The important issue here, of course, is that the public doesn't understand this and doctors as well are poorly informed as to what may happen when a drug is administered since they may not receive adequate education about drugs during their medical training.

He also states that prescription drugs are heavily over-prescribed. Certainly everyone involved in the industry would tend to agree with this. The contributing factors to over-prescribing are built into the whole health care system. Patients expect a prescription and we know from experience, if they don't get one, they feel like they've left the doctor's office without adequate treatment.

He points out that doctors could prescribe more generic drugs if they wanted to, but they don't because they're poorly informed and because they simply don't want to write the names of generic products, which are sometimes hard to memorize and they don't want to look them up in the patient's presence.

Interestingly enough, as most of us

would say in answer to this, even though we know that generics are well manufactured and all of that, we still want to have the brand name prescription drugs for our own use and he says that he would prefer that himself.

He makes mention of "me too" or "copyeat" drugs and says their cost is a small price to pay for an innovative, research industry.

The book is available in bookstores, drug stores and other places where paperbacks are sold. Add it to your library.—"Action in Pharmacy" newsletter, Kansas City, Mo.

Dietary Fat and Cancer

Dr. T. Colin Campbell, senior science adviser to the American Institute for Cancer Research, has announced that scientific data on the relationship between diet and cancer are strong enough to warrant the development of dietary guidelines to lower cancer risk.

He sums up the research findings as showing that cancer risk increases with high intake of dietary fat and protein, and low intakes of food rich in vitamin C, vitamin A, vitamin E and dietary fiber.

Dietary fat comprises 40-45% of the total caloric intake in the American diet. Reduction of dietary fat to 30% of the total calories would be ideal.

Advice for Fishermen

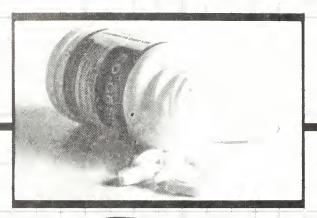
Wounds caused by stings by Scorpaenidae, a family of venomous bony fish, are extremely painful. A recent report in *JAMA* reviews 51 cases occurring in the San Francisco Bay Area Regional Poison Control Center between 1979 and 1983.

Immersion of the injured member into hot water is usually the only treatment necessary. It was 94% effective in this series. A variety of pharmaceuticals have been tried previously to no avail.

The fish family includes lionfish, turkeyfish, zebrafish, butterfly cod, scorpionfish and stonefish. Their usual habitat is the Pacific and Indian Oceans.

Co-Gesic®

(500 mg. Acetaminophen - 5 mg. Hydrocodone Bitartrate)



Proven Dependability



CENTRAL PHARMACEUTICALS, INC.

SEYMOUR, INDIANA 47274 USA

Quality Pharmaceuticals Since 1904



What do you say when all signs point to ALCOHOLISM OR DRUG ABUSE?

The safe thing to say is Fairbanks Hospital, an accredited medical institution serving Indiana since 1945. Services include inpatient and outpatient care, consultation on your patient by Fairbanks medical staff, professional intervention assistance, proven adolescent as well as adult treatment programs. A phone call to Fairbanks can be The Turning Point for your patient.



FAIRBANKS HOSPITAL

The Turning Point

8102 Clearvista Parkway, Indianapolis, IN 46256 (317) 849-8222



AUXILIARY REPORT

Judy Koontz (Mrs. James A.) President, ISMA Auxiliary

Central Area counties put the FUN back in FUND raising, having arrived at a recipe for success in a variety of charitable endeavors. The Central Area is 17 counties strong—each one actively contributing to the quality of life in local communities through auxiliary-sponsored projects.

The Owen-Monroe county Auxiliary has hit on a combination which involved a coalition with another community group, in this case the Bloomington Hospital Auxiliary and the Bloomington Hospital Foundation, in order to raise funds for the Bloomington Hospital.

This type of arrangement has long been encouraged by the AMA Auxiliary as a way to utilize available resources and volunteer skills for maximum results in smaller communities. The Hospital and the Medical Auxiliaries share in the profits from this year-round effort which culminates in a rousingly successful Christmas Tree Sale and Auction, resulting in a profit of \$47,000, which is shared equally by the two groups. Success indeed! When first started in 1983, "The Festival of Trees" was described as an elegant evening with a purpose. The entire 2½-day event enlisted over 1,500 volunteers and was viewed by thousands of area citizens. Groups and individual artists decorated trees that were sponsored by businesses and organizations for auction and sale. The 1984 Festival of Trees was expanded even further, to the point where it is the most successful fundraising event in the hospital's history, and certainly in the history of the auxiliary. The proceeds from the 1984 festival were earmarked to purchase a mammography unit. A true group effort!

The Wayne-Union County Auxiliary has a Spring Card Party-Styleshow Luncheon each year, which benefits second year nursing students at the



Marsha Daughtery mixes salad for a Bartholomew-Brown County Auxiliary membership luncheon, at which Columhus area women physicians were special guests. Suzanne Roberts is waiting to help.

I.U. East School of Nursing in Richmond. Their entire membership gets "in the act," planning this event which also is community oriented. The majority of the nursing students on auxiliary scholarships live and work in the East Central Indiana area after graduation.

In Tippecanoe County an annual Spring Boutique Auction provides scholarship funds for young people from the Lafayette area who are pursuing medical careers. Hailed as one of the highlights of the year, it is a popular event with their membership because "we are doing good things for our community, and enjoying ourselves while we do them," according to their president. They sew, crochet, knit, paint, bake and cook—and then spend lavishly at an auction which last year added \$1,600 to their scholarship fund.

The Bartholomew-Brown County Auxiliary will be attempting a fundraiser in coalition with the Dental Association Spouses this spring. The plans are proceeding for a "Doctors Garage Sale" to benefit the Heart Fund in their local community, a project which no doubt will provide this group of active women with an excellent membership recruiting tool as well.

Most of the seventeen central area counties have their fundraisers to benefit local projects—be it scholarships or something else—but the most original idea this year must be Marion County's "SPLASH FOR M.A.S.H.", which brought families and friends of Marion county members to the I.U. Natatorium for an old-fashioned swim party—complete with hot dogs, ham, baked beans and potato chips—the proceeds to benefit the Nurses Scholarship Fund.

The M.A.S.H. (Medical Auxiliary Scholarship Happenings) project, now in its fourth year, and the most successful ongoing scholarship project ever, was born in a moment of panic during a year which saw plans for a benefit collapse and several scholarship students expecting the auxiliary's support to continue. A series of parties were planned by auxiliary hostesses throughout the year, the theme, size, guest lists and requested donations to be a termined by the hostess, and even though it was a novel idea to pay to attend a friend's party, the concept seemed to take hold. Thousands of dollars have been added to the scholarship fund these past four years—with the fun playing a large part!

The entire state is involved in all types of fundraising activities. Auxiliary members are concerned, caring and sharing community supporters. In short, we have the state president's theme for this year, and the message that she wanted to leave behind at the end of her year!—Anne Throop, Central Area Vice-President

NEWS NOTES

News from the AMA

· The freeze on physician reimbursement under the Medicare program has forced the nation into a twotier system of medical eare in which Medicare patients become "secondclass citizens," the AMA said in a brief filed in U.S. District Court in Indiana. The AMA said it was chal lenging the Medicare provisions of the Deficit Reduction Act of 1984 because it "profoundly alters and dramatically enlarges the role of government in the delivery of health care." The brief also stated that the law interferes with the patient's right to select his or her own physician.

• In its suit challenging provisions of the Deficit Reduction Act of 1984, the AMA filed documents examining data on the causes of increased spending on health care. The documents state that nearly all of the increased spending-apparently over 95% - is due to general inflation, increased Medicare enrollment and increased use of physician services by Medicare patients. The AMA said that "physicians' fees . . . measured in constant dollars have been growing by only 1% annually since the early 1970s," that physicians' real net incomes have been declining on average (by 0.2% a year)," and that MDs' fees to Medicare patients "have grown no faster than other fees, and appear to have grown more slowly."

• The AMA began surveying the



professional activities of all U.S. physicians in February. This is being accomplished in a year-long mail eensus that the AMA conducts every four years. The questionnaire will be used to update physicians' official AMA records before publication of the American Medical Directory.

• Radio and television advertising of physicians' fees is an issue that generates strong reactions and differing opinions within the profession, according to the AMA Dept. of Survey and Opinion Research. The percentage of pro-advertising physicians more than doubled between 1978 and 1983, from 8% to 17%. The overwhelming proportion of physicians, however, continued to disapprove of listing fees. Younger physicians were more than twice as likely as older physicians to approve of fee advertising.

• "Medicine Today," the AMA's 30-minute television program of clinical and socio-economic medical news, premiered in January on the Lifetime Cable Network. The program constitutes the second half of Lifetime's "Physicians' Journal Update," which airs every four hours starting at 9 a.m. (EST) on Sundays. Thirteen conventional TV stations also carry the program. About 1,000 hospitals have contracted to receive Lifetime programming via satellite. The AMA will retain editorial control over all material used on "Medicine Today."

For the Asking . . .

• "A Checklist to Review Your Retirement Plan," a six-page article written for physicians by a medical consulting firm, is now available. For the article, reprinted from *Physician's Management*, contact. The Health Care Group, 400 GSB Bldg., One Belmont Ave., Bala Cynwyd, Pa. 19004—(800) 441-0737.

• "Reye Syndrome: Questions and Answers" is a 24-page pamphlet prepared by the American Council on Science and Health. Topics such as the relationship of Reye Syndrome to the use of salicylates in children recovering from a viral infection are discussed in a Q&A format. Send a self-addressed, stamped (39¢), business-size envelope (#10) to Reye Syndrome Report, ACSH, 47 Maple St., Summit, N.J. 07901.

• The latest edition of the "ACSH News & Views" newsletter contains an interesting article on the use of chlordane and related insecticides in the control of termites. Such compounds usually are injected deep into the ground outside the foundation and footings of dwellings. Traces of the insecticides rarely invade the house; the toxicity for humans is slight. Still, many householders refrain from protecting their houses from termites because of the fear of toxicity. When used properly, the benefits of insecticides clearly outweigh the risks. The American Council on Science and Health, publisher of the newsletter, will mail copies of the issue on termite control on request. The address is 47 Maple St., Summit, N.J. 07901.

• The 1985 edition of CPT-4 may be ordered for \$25, plus \$4 for shipping and handling. Checks, payable to the American Medical Association, should be sent to the Order Dept., AMA, P.O. Box 10946, Chicago 60610.

• National specialty societies' "Statements on Delineation of Hospital Privileges" have been compiled in a 93-page publication available at no charge from the AMA. Hospitals and medical staffs frequently rely on the specialty societies' statements for assistance in determining the privileges that should be accorded to a physician practicing in that specialty. For a copy of the statements, write to AMA Dept. of Hospital Standards and Procedures, Div. of Professional Relations, AMA headquarters.

• The American Social Health Association is mailing, on request, copies of a brochure entitled, "Some Questions and Answers about Chlamydia." The educational eampaign is aided by a grant from Lederle. Chlamydia infections are rapidly becoming the nation's number one venereal disease. For a copy, send a self-addressed, stamped #10 envelope to the ASHA at 260 Sheridan Ave., Palo Alto, Calif. 94306.

M.D.s Find Yellow Pages Useful Advertising Tool

Most physicians are constitutionally hesitant when it comes to advertising. Promotional campaigns in newspapers, radio or television are rejected as non-professional.

There is, however, one vehicle that is both effective and acceptable by many. The Yellow Pages have proved to be a satisfactory avenue for publicizing the office address, type of practice, phone number and hours. Even the use of large typefaces and the more attractive arrangements have not been criticized.

According to "The Physician's Advisory" newsletter, from which the above observations are obtained, the ethical popularity of the more attractive ad is based on the philosophy that "if you are going to pay to have your name in there, you might as well pay more to have your name noticed."

The "Advisory" also reports that marketing polls indicate a surprising number of patients choose their doctors through the Yellow Pages.

School Must Provide CIC for Handicapped Child

A school district was required to provide clean intermittent catheterization for an 8-year-old girl born with spina bifida, the U.S. Supreme Court has ruled.

As a result of her condition, the child suffers from a neurogenic bladder, which prevents her from empty ing her bladder voluntarily. She must be catheterized every three or four hours to avoid injury to her kidneys. Clean intermittent catheterization (CIC) is the technique used. It is a simple procedure that can be performed in a few minutes by a layperson with less than an hour's training, the evidence showed.

The school district developed an individualized education program for the child, but the program made no provision for school personnel to perform CIC. The parents filed suit under the Education of the Handicapped Act to compel the school district to

provide CIC. The Act required school districts to provide a free appropriate public education, including related services. Related services included medical services, but only those for diagnostic and evaluation purposes.

On appeal to the U.S. Supreme Court, after several federal trial and appellate court decisions, the U.S. Supreme Court said that CIC was a related service, not a medical service, under the Act. The services of a physician were not required because the procedure could be performed by a nurse or trained layperson. The services of a school nurse were not included in the definition of medical services, CIC was no less related to the effort to educate than are services that enable a child to reach, enter, or exit a school, the court added.

The court said that the parents could not recover attorney's fees. They could be recovered under the Rehabilitation Act, but since the parents obtained relief under the Handicapped Act, which did not provide for the recovery of attorney's fees, they were not entitled to fees.—Irring IndependentSchool District v. Tatro, 104 S.Ct. 3371 (U.S. Sup. Ct., July 5, 1984)

Methodist Unveils Youth Psychiatric Unit

The Methodist Hospital, Indianapolis, has opened its new Adolescent Psychiatric Unit. A 34-bed adult unit was completely remodeled into a 16-bed adolescent unit.

The unit features a closed, structured environment designed for privacy, safety and security. The basic therapeutic approach will be one-to-one therapy as all patients have their own psychiatrist, who also functions as the team leader for a multidisciplinary program. Besides multiple group therapy sessions, there are twice-weekly sessions for parents. An Indianapolis public school teacher works regularly on the unit providing individual tutorial sessions.

Dr. Paul Stewart is chairman of the

Adolescent Psychiatric Unit. Ten other psychiatrists on the Methodist staff will be utilizing the unit. The inpatient program is open to adolescents between the ages of 13 and 18.

Those interested in more details about the unit and its program may write or phone Dr. Dwight Schuster, c/o Methodist Hospital, 1604 N. Capitol Ave., Indianapolis 46202—(317) 929-8718.

Aborigines Provide Clues to Healthier Living

Upjohn's newsletter, "Diabetes News Fronts," reports a clinical study in which Australian aborigines who moved to the outskirts of a large city and adopted Western diet habits developed obesity and adult-onset diabetes in large numbers.

Diabetes is a rare disease in the wild. When the diabetics were returned to their original way of life—and lived on what they acquired by hunting and fishing—the diabetes either improved greatly or was completely reversed.

The same development of hypertension and return to normal is observed in some aborigines who adopt the Western diet of fatty meat, carbonated beverages and alcohol. On return to the wild, obesity disappears and blood pressures return to normal.



"Before you start imagining what you have, let me tell you what you really have."

news notes

Rabies Vaccine Recall

The FDA has announced a Class 1 recall of WYVAC Rabies Vaccine. Lot numbers 31201, 31401, 4838047, 4838052, 4838055, 4838056, 4858062, 4838069, 4838070, 4838071, 4838079 and 4848102.

Further information may be obtained from Wyeth at 1-800-321-2304 or 1 800-324-2401 or from Claudette Brady of the FDA at (301) 443-1016.

Here and There . . .

Dr. Richard E. Brashear, professor of medicine at Indiana University School of Medicine, has been appointed to the editorial board of *Chesi* and to the editorial board of *Heart & Lung*.

Dr. Kamalesh A. Amin and Dr. F. Michael Mullinix of Indianapolis have been inducted as members of the American College of Radiology.

Dr. Clarence Ehrlich of Indianapolis is serving as the American College of Obstetricians and Gynecologists' representative on the American College of Radiology's Commission on Caneer.

Drs. Gregory P. Sutton, Jeffrey M. Barrett and John C. Jarrett, Indianapolis, are new diplomates of the American Board of Obstetrics and Gynecology.

Don D. Hamachek, administrator of

KUM KUM

"One thing's for sure—whatever you have is very contagious!"

St. Francis Hospital Center in Beech Grove, has been elected regent for the state of Indiana for the American College of Hospital Administrators.

Dr. Richard T. Gripe of Lafayette, Dr. Hill Hastings II of Indianapolis, Dr. Neil II. Levine of Indianapolis, Dr. Philip W. Pryor of Beech Grove and Dr. Edward W. Rutledge of Marion have been inducted as fellows of the American Academy of Orthopaedic Surgeons.

Dr. Philip N. Eskew Jr. of Carmel has returned from Washington, D.C. after a month-long study of the internal workings of the federal government as a result of winning the Sprague H. Gardiner Fellowship, which is coordinated by the Dept. of Government Relations, American College of Obstetricians and Gynecologists.

Dr. Mars B. Ferrell, 70, a Fortville family physician, has retired from practice.

Dr. Herbert P. Hargett, 66, a Jeffersonville ophthalmologist, has retired from practice.

Dr. Charles F. Deppe of Franklin has been elected to the Franklin College board of trustees.

Dr. J. F. Hinchman of Parker has been elected to the board of directors of the Parker Banking Co.

Dr. Robert J. Schmitt has been elected president of the medical staff of Walters Hospital, Michigan City.

Dr. David A. Shapiro is the new chief of the medical staff, White County Hospital, Monticello; Dr. Paul P. Van Kirk is vice-chief of staff, and Dr. Frederic Henney is secretary-treasurer.

Dr. Gilbert M. Wilhelmus is the new president of the medical staff, St. Mary's Medical Center, Evansville; Dr. Taft W. Roe is vice-president, and Dr. R. Kenneth Spear is secretary-treasurer.

Dr. Robert M. Lohman is the new president of the medical staff, Lutheran Hospital, Fort Wayne; Dr. John T. Lucas is president-elect, Dr. Robert F. Cottrell is vice-president, and Dr. John S. Mohrman is secretary-treasurer.

Dr. John H. Isch of Indianapolis discussed thoracic surgery at the February meeting of the Mended Hearts' Circle City Chapter 78.

Dr. William II. Beeson of Indianapolis discussed cosmetic surgery at the February women's luncheon series conducted by Riverview Hospital.

Dr. John F. Moe of Indianapolis discussed arthritis during a February public meeting on preventive medicine.

Dr. Kenneth Gammon of Elkhart discussed pulmonary rehabilitation during the February meeting of the Elkhart COPE Club.

Dr. Donald R. Elder of Evansville served on a panel discussing "aching backs" during a February community health forum at Deaconness Hospital.

Dr. Robert E. Rogers of Indianapolis discussed "Current Recommendations on the Use of Estrogen in Post-Menopausal Women" with the staff of Union Hospital in Terre Haute.

Dr. R. Kelly Chambers of Anderson discussed heart disease and its prevention during a February forum sponsored by Community Hospital.

Dr. Sheldon J. Friedman of Noblesville recently discussed heart disease as part of Riverview Hospital's education series.

Dr. Craig A. Moorman, a Franklin pediatrician, discussed "First Aid for Grandkids" at a recent meeting of the Franklin Lions Club.

Dr. Elliot II. Stokar of Munster discussed drugs and their side effects in asthma treatment during a recent Asthma Awareness meeting in Merrillville.

Dr. Cloyd L. Dye of New Castle discussed heart attacks at the January meeting of the Raintree Chapter, American Business Women's Assn.

Dr. George R. Small of Greenwood was guest speaker at a January meeting of the Indianapolis Support Group for Alzheimer's Disease and Related Disorders.

Dr. David K. Johnloz and Dr. Louise Owens of Bloomington discussed functional bowel disorder at a recent "Speaking of Health" meeting sponsored by Bloomington Hospital.

New ISMA Members

The following physicians were welcomed in January as new members of the Indiana State Medical Association:

Randall L. Caldwell, M.D., Indianapolis, pediatrics.

Debra L. Cook, M.D., Columbus, obstetries and gynecology.

David W. Dunn, M.D., Indianapolis, child neurology.

Aaron J. Feldman, M.D., In dianapolis, eardiovascular surgery.

Amy S. Fremion, M.D., Indianapolis, child neurology.

Bhuwan P. Garg, M.D., Indianapolis, pediatries.

Venkatrama R. Garlapati, M.D., Merrillville, internal medicine.

Steven R. Gatewood, M.D., Elwood, family practice.

Maurice F. Girgis, M.D., Merrillville, anesthesiology.

Gary L. Griffith, M.D., Indianapolis, thoracic surgery.

Peter V. Hall, M.D., Indianapolis, neurological surgery.

Diane L. Hopen, M.D., Fort Wayne, family practice.

Kambiz T. Karimi, M.D., In dianapolis, internal medicine.

John C. Kincaid, M.D., Indianapolis, neurology.



Ingrid E. Mason, M.D., Indianapolis, internal medicine.

James R. Maybury, M.D., In dianapolis, child psychiatry.

Jose Miller, M.D., Batesville, anesthesiology.

John B. Moore, M.D., Indianapolis, plastic surgery.

Shirley M. Mueller, M.D., Indianapolis, neurology.

Richard W. Newcomb, M.D., Gary, pediatrics.

Abdul R. Pourmand, M.D., In dianapolis, neurology.

James L. Preston, M.D., Munster, family practice.

Steven L. Priddy, M.D., Indianapolis, anesthesiology.

Valerie A. Purvin, M.D., Indianapolis, neurology

R. Venkata Reddy, M.D., Indianapolis, neurology.

Gordon Shaw, M.D., Schererville. pathology.

Elian M. Shepherd, M.D., Gary, orthopedic surgery.

John T. Taylor, M.D., Munster, obstetrics and gynecology.

John D. Trenkner, M.D., Fort Wayne, therapeutic radiology.

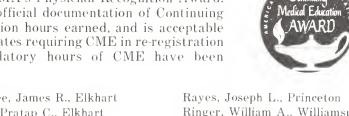
Gary H. Wheeland, M.D., LaPorte, family practice.

James G. Wymore, M.D., Kokomo, ophthalmology.

Physician Recognition Awards -



The following ISMA physicians are recent recipients of the AMA's Physician Recognition Award. This award is official documentation of Continuing Medical Education hours earned, and is acceptable proof in most states requiring CME in re-registration that the mandatory hours of CME have been accomplished.



Aeschliman, William J., Fort Wayne Arata, Justin E., Fort Wayne Arshad, Mahjabin K., Merrillville Babcock, George K., Bluffton Bao, Danny C., Carmel Brown, Michael R., Terre Haute Chadwick, Michael J., Columbus Clark, Eric D., Plainfield Cooper, Daniel F., Indianapolis Cottrell, Robert F., Fort Wayne Daftary, Ali A., Batesville Erxleben, Walter O., Bluffton Fouts, John B., Fort Wayne France, Lloyd C., Plymouth Gabriel, Magdi, Mishawaka

Greenlee, James R., Elkhart Gupta, Pratap C., Elkhart Halcomb, F.J., Warsaw Higgins, James L., Evansville Hobbs, Hudner L., Indianapolis Johnston, Craig R., Indianapolis LeGrand, Daniel R., Indianapolis Lohmuller, Herbert W., Bluffton Mann, Richard E., Fort Wayne McCarthy, Mary C., Indianapolis Miller, Donald C., Cedar Lake Nesbitt, William A., Connersville Palmer, Robert M., Indianapolis Pappas, Eddie T., Merrillville

Ringer, William A., Williamsport Roach, Eugene G., Beech Grove Saalwaechter, John J., Lebanon Serwatka, James A., South Bend Shoemaker, Richard L., Lafayette Sorrells, George W., Bedford Stine, Marshall E., Bremen Tan, Juan P., Munster Tharp, Stephen D., Frankfort Thompson, Samuel R., Fort Wayne Tiongson, Atanacio H., Logansport Wagner, Richard W., Huntington Wagner, Virginia M., Indianapolis Weiss, Brian H., Merrillville

PHYSICIANS' DIRECTORY

CARDIOLOGY DIAGNOSTIC AND INTERVENTIONAL

WILLIAM K. NASSER, M.D.

MICHAEL L. SMITH, M.D. DENNIS K. DICKOS, M.D.

CASS A. PINKERTON, M.D.

JOHN D. SLACK, M.D.

JAMES W. VAN TASSEL, M.D. CHARLES M. ORR, M.D.

JANE HOWARD, M.D.

CARDIOLOGY AND CARDIAC CATHETERIZATION **ECHOCARDIOGRAPHY** EXERCISE STRESS TESTING CORONARY ANGIOPLASTY NUCLEAR CARDIOLOGY PACEMAKER SURVEILLANCE HOLTER MONITORING

ST. VINCENT PROFESSIONAL BUILDING

SUITE 413 8402 HARCOURT ROAD INDIANAPOLIS. INDIANA 46260

PHYSICIAN REFERRAL ONLY TELEPHONE (317) 875-9316 (TOLL-FREE) 800-732-1482 DAY OR NIGHT

PLASTIC SURGERY

ALCOHOLISM TREATMENT

AMBULATORY SURGERY FACILITY
1944 N. Capitol Ave. Indianapolis 46202

"An office surgery facility"

HAROON M. QAZI, M.D., F.A.C.S.

Diplomate, American Board of Plastic Surgery Phone: 317-923-4822 317-926-3466

PSYCHIATRY

Davis Psychiatric Clinic, Inc.

1431 North Delaware Street Indianapolis, Indiana 46202 317/634-9930

James R. Davis, M.D. R. Peter Mohlman, M.D. Larry M. Davis, M.D. George McAfee, M.D.

Comprehensive Child, Adolescent, Adult Psychiatry Sexual Therapy, Crisis Intervention Alcohol and Substance Abuse JOHN J. SAALWAECHTER, M.D.
BEN H. PARK, M.D.
RITCHIE COONS, M.D.
DAVID L. PHILLIPS, M.D.
MICHAEL J. CHADWICK, M.D.
DAVID L. GREGORY, M.D.

Individualized Treatment for Alcoholism/Drugs

Men - Women - Adolescents



1711 Lafayette Avenue Lebanon, Indiana 46052 (317) 482-3711

2223 Poshard Drive Columbus, Indiana 47202 (812) 376-1711

8925 N. Meridian St. Indianapolis, Indiana 46260 (317) 848-7666

4333 E. Third St. Bloomington, Indiana 47401 (812) 333-3012

428 S. Washington St. Suite 347 Marion, Indiana 46952 (317) 668-7067

OPHTHALMOLOGY

George E. Waters, Jr., M.D.

Diplomate. Imerican Board of Ophthalmology

Diseases and Surgery of the Lye 9100 Meridian Square

50 Last 91st Street

Indianapolis, Indiana 46240

317-844-6180

Douglas Bullington, M.D.

Program Director



COUNTERPOINT CENTER

at Valle Vista Hospital 898 E. Main Street Greenwood, IN 46142 317/887-1348

- Free evaluation and intervention
- Adult & Adolescent Treatment Services
- 24 hours a-day

CARDIOLOGY

INDIANAPOLIS CARDIOLOGY ASSOCIATES, INC.

Robert E. Edmands, M.D. Samuel M. Hazlett III, M.D. Abdel A. Zeni, M.D.

Don B. Ziperman, M.D., F.A.C.C.

CARDIOLOGY AND CARDIAC CATHETERIZATION
ECHOCARDIOGRAPHY
EXERCISE STRESS TESTING
CORONARY ANGIOPLASTY
PACEMAKER SURVEILLANCE
HOLTER MONITORING

1315 North Arlington Avenue Suite #100 Indianapolis, Indiana 46219 (317) 359-3501

PHYSICIAN REFERRAL ONLY

1500 Albany Street Suite #912 Beech Grove, Indiana 46107 (317) 786-9211

PERIPHERAL VASCULAR SURGERY

USTIN L. GARDNER, M. D., E.A.C.S.

W. M. KENDRICK, M.D.

AUSTIN L. GARDNER, M. D., F.A.C.S. MALCOLM B. HERRING, M. D., F.A.C.S. DANIEL R. LEGRAND, M.D. DAVID L. MADISON, M.D.

GENERAL VASCULAR SURGERY

8402 HARCOURT ROAD, SUITE 613

INDIANAPOLIS, INDIANA 46260
OFFICE HOURS BY APPOINTMENT
TELEPHONE (317) 872 4129
OR
800 662 5367

Certified: International Board of Proctology

Practice limited to Colonscopy.

G. A. DONNALLY, M.D.

R. JAMES WILSON, M.D.

W. E. KELLEY, M.D.

COLON AND RECTAL

Practice limited to Colonscopy, Treatment and Surgery of Rectal Diseases

Kendrick Memorial Hospital, Inc. Mooresville, Indiana Tel: 317-831-9300

(JCAH Accredited)

JCAIT Accredited

INTERNAL MEDICINE

CLINICAL, ANATOMIC PATHOLOGY

NEPHROLOGY & INTERNAL MEDICINE, INC.

Thomas Wm. Alley, M.D., FACP George W. Applegate, M.D. Charles B. Carter, M.D. William H. Dick, M.D., FACP

M.D. Douglas F. Johnstone, M.D.
D. Wendy L. Kindig, M.D.
FACP LeRoy H. King, Jr., M.D., FACP
Mary A. Margolis, M.D.

Theodore F. Hegeman, M.D.

1633 N. Capitol, #722, Indianapolis 46202 Ph: 317-926-0757

By Physician Referral

Answering Service 926-3466

CLINICAL NEPHROLOGY, RENAL TRANSPLANTATION, HEMODIALYSIS, PERITONEAL DIALYSIS, HYPERTENSION, FLUID AND ELECTROLYTE IMBALANCE, CRITICAL CARE.

MERIDIAN MEDICAL GROUP, INC.

3130 North Meridian Street P. O. Box 88273 Indianapolis, Indiana 46208 (317) 927-1221

CARDIOLOGY

GASTROENTEROLOGY

Robert D. Pickett M.D. 927 (14), Lee G. Jordan M.D. 467-106 Martin P. Meisenheimer M.D. 927 (13), John C. Kohne, M.D. 927 (14)

HEMATOLOGY-ONCOLOGY

lames El Schipeder MD - 927 1245 Frank Al Workman MD - 927 1269

INFECTIOUS DISEASES

Michaer Zecker 11 927 127 Thomas G. Srama, M.D. 8424 Naab Road Robert L. Baker, M.D. 927 1283

PULMONARY DISEASES

Michae Rillinger Michae Rillinger Michael Rillinger

INTERNAL MEDICINE

Hunter Al Soper MID BUT 1.50

Douglas in White up IV CL 92 1.154

BIT Maxam MID R27 1.25

Michael BID JuBois, MID GER ATRICS Patriola Kill Hender-not IVID 9.751 1.55

Douglas Ji Moever IVID 927 1.266

Tymothy Ji Story, MID 927 1.266

METABOLISM & ENDOCRINOLOGY

We am M. Ho and M.D.

NEUROLOGY EEG & EMG LAB



The Medical Laboratory

of Drs. Thornton - Haymond - Costin Buehl Bolinger Warner McGovern - McClure - Hooker

5940 West Raymond Street, Indianapolis, Indiana 46241
Phone: (317) 248-2448

COMPLETE LABORATORY SERVICES

Serving Indiana Since 1947

- MICROBIOLOGY
- SEROLOGY
- CHEMISTRY
- SURGICAL PATHOLOGY
- HEMATOLOGY
- COAGULATION
- FORENSIC
- CYTOLOGY
- EKG
- VETERINARY PATHOLOGY
- TOXICOLOGY
- COURIER SERVICES



CLINICAL AND ANATOMIC PATHOLOGY

Central Testing Facility: 5940 W. Raymond St. For information and details phone 248-2448

RHINOLOGY

By appointment only

317-359-9636

CARL B. SPUTH, M.D.

Diseases & Surgery of Nose & Sinuses Plastic Surgery of the Nose Nasal Allergy, Rhinomanometry

5506 E. 16th St.

Indianapolis 46218

OTOLOGY

MERIDIAN OTOLOGY LAB

Is Pleased to Announce the Opening of our New Office Providing

*Complete Audiometric Evaluations
*Hearing Aid Evaluations and Dispensing
*Brainstem Auditory Evoked Response
*Visual Evoked Response
*Electronystagmography

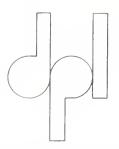
Richard Kurtz, M.D. Jack Summerlin, M.D. Kathleen Corbin, M.A., CCC-A Audiologist

3266 N. Meridian Street Indianapolis, Indiana Suite B12 (317) 925-7077

DERMATOPATHOLOGY

DERMATOPATHOLOGY LABORATORY

Larry J. Buckel. M D Robert M. Hurwitz, M D Howard R. Gray. M.D. William B. Moores. M.D.



Diplomates of the American Board of Dermatology and Dermatopathology

Specializing in
Inflammatory Skin Diseases
and
Neoplasms of the Skin

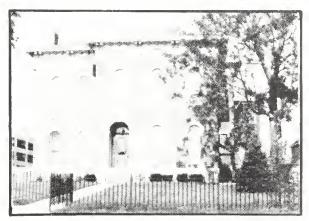
9202 Dorth Mendian Street

Indianapolis, Ind 46260 (317) 843-2204

Mailers and Courier Service Available

ONCOLOGY—HEMATOLOGY

INDIANA ONCOLOGY-HEMATOLOGY CONSULTANTS



Byram Gates Middleton House, listed on the National Register of Historic Places 1828 North Illinois Street Indianapolis, Indiana 46202

ADULT ONCOLOGY · HEMATOLOGY

Laurence H. Bates, M.D.,

William M. Dugan, Jr., M.D.,

Redmond P. Hogan, III, M.D.,

Gregory W. Smith, M.D.

PEDIATRIC ONCOLOGY — HEMATOLOGY

Deborah S. Provisor, M.D.

INTERNAL MEDICINE/HOSPICE CARE

NEIL E. IRICK, M.D.

Telephone 317-927-5770 24 hours TOLL FREE: 1-800-ONC-HEME (662-4363)

Attention Indiana Physicians

The *Physicians' Directory* is the most ethical and professional method of announcing specialty practice. It is also the most effective medium for listing office location, office hours, and telephone number for the convenience of colleagues in referring patients.

The title of diplomate of a specialty examining board a requirement for admission to the *Directory* offers its assurance of qualifications whether listed or not

Family physicians may amounce office chedules that are reciprocally staggered in order to provide access to evening and weekend and holiday medical service.

In addition to providing benefits to physicians the *Directory* is a practical mean, of providing financial support for PaDIASA MEDICIDE

All diplomates of the ISMA are invited to enter professional card in the *Directory*

OPHTHALMOLOGY



COMPLETE MEDICAL, DIAGNOSTIC & SURGICAL OPHTHALMIC SERVICES

- Eye Examinations
- Consultations
- Surgery: Cataract, Implant, Glaucoma, Laser, Pediatric, Plastic, Retinal, Corneal and Refractive
- Contact Lenses: Hard, Soft, Gas Permeable
 Extended Wear
- Visual Fields
- Ocular & Endothelial Photography
- Ultrasonography

Physicians:

David L Alvis, M D J
Peter H Cahn, M.D. J
George A. Clark, M.D. F
Parvin D Gillim, M D G

Jack L. Kane, M.D. John E. Mitchelson, M.D. Francis W. Price Jr., M.D. George E. Waters Jr., M.D.

Indiana Eye Associates P.C. 9100 Meridian Square 50 East 91st Street (at North Meridian) Indianapolis, IN 46240 Phone: (317) 848 1348 The Physicians' Directory is an inexpensive way to obtain referrals from other ISMA physicians. INDIANA MEDICINE will publish your professional card information in this space for 12 consecutive months—and the total cost to you is only \$360. Think about it.

A space this size in the Physicians' Directory costs only \$240. And that will keep your professional card appearing every month for a full year.

A space this size in the Physicians' Directory costs only \$120. Even a notice this size will serve to provide referrals for the next 12 months.

CHE DUIZ

TO OBTAIN ONE HOUR OF CATEGORY 1 AMA CME CREDIT, answer the following questions by circling the correct answer on the answer sheet below. Complete and clip the application form and mail it to: Indiana University School of Medicine, CME Division, Fesler Hall 221, 1120 South Dr., Indianapolis 16223.

Bone Marrow Transplantation

CONTINUED FROM PAGES 265-269

- 1. In syngeneic bone marrow transplantation, the donor is:
 - a. patient himself
 - b. identical twin
 - c. HLA identical sibling
 - d. HLA identical non-related
- Allogeneic bone marrow transplantation in children with acute lymphocytic leukemia should be considered:
 - a. in first remission
 - b. beyond first remission
 - c. as soon as diagnosis is made
 - d. only if leukemia does not respond anymore to chemotherapy
- 3. Graft-versus-host disease is caused by:
 - a. donor T lymphocytes transferred with the bone marrow graft
 - b. recipient T lymphocytes that persist following BMT
 - c. toxicity of the preparative regimen
- d. infection with cytomegalovirus
- 4. The major complications in HLAmatched sibling transplants for acute

- leukemia consist of (1) relapse of leukemia; (2) rejection of graft; (3) graft versus-host disease; (4) interstitial pneumonitis:
- a. 1, 2
- b. 1, 2, 3
- c. 1, 3, 4
- d. 1, 2, 3 and 4
- The highest risk of bacterial infection following bone marrow transplanta tion occurs in:
 - a. first 3-4 weeks
 - b. second month
 - e. third month
 - d. second year
- 6. Which statement about autologous bone marrow transplantation is not true?
 - a. Autologous BMT does not carry the risk of graft-versus host disease.
 - b. Autologous BMT is of proven value for treatment of acute leukemia.
 - c. Autologous BMT carries the risk

- of reinfusing neoplastic cells.
- d. Autologous BMT cannot be used to replace abnormal hematopoietic stem cells.
- 7. Rejection of a bone marrow graft can be prevented by:
 - a. decreasing conditioning regimen
 - b. removing Tlymphocytes from the graft
 - c. increasing conditioning regimen-
 - d. transfusing recipient prior to transplantation
- The organ that is primarily responsible for mortality from graft-versushost disease is:
 - a. skin
 - b. lung
 - c. liver
 - d. gut
- The most commonly used cytotoxic drug in the conditioning regimen for allogeneic BMT is:
 - a. cyclophosphamide
 - b. busulfan
 - c. high dose arabinoside-cytosine
 - d. methotrexate
- 10. The chances of having an HLA matched sibling donor when the pa tient has one brother and one sister are:
 - a. 25%
 - b. 37.5%
 - e. 50%
 - d. 75%

MARCH CME QUIZ Answers

Following are the answers to the CME quiz that appeared in the March 1985 issue: "Gastroesophageal Reflux: An Update," by Katherine W. O'Connor, M.D.

1. c 6. c

- 1. c 2. e 3. a
- 7. a 8. c 9. b
- 4. d 5. e
- 10. c

Answer sheet for Quiz: (Bone Marrow. . .)

1. a b c d 6. a b c d
2. a b c d 7. a b c d
3. a b c d 8. a b c d
4. a b c d 9. a b c d
5. a b c d 10. a b c d

I wish to apply for one hour of category 1 AMA Continuing Medical Education credit through the I.U. School of Medicine. I have read the article and answered the quiz on the answer sheet above. I understand that my answer sheet will be graded confidentially, at no cost to me, and that notification of my successful completion of the quiz (80% of the questions answered correctly) will be directed to me for my application for the Physician's Recognition Award of the American Medical Association. I also understand that if I do not answer 80% of the questions correctly, I will not be advised of my score but the answers will be published in the next issue of Indiana Medicine.

Name (please print or type)

Address

Identification number (found above your name on mailing label)

Signature

To be eligible for this month's quiz, send your completed, signed application before May 10, 1985 to the address appearing at the top of this page.

OBITUARIES.

Edwin W. Dyar, M.D.

Dr. Dyar, 78, a retired Indianapolis ophthalmologist, died Dec. 21 at St. Vincent Hospital.

He was a 1930 graduate of Indiana University School of Medicine and a Navy veteran of World War II.

Dr. Dyar, who retired in 1981, was a fellow of the American Academy of Ophthalmology and a diplomate of the American Board of Ophthalmology. He also was a member of the American College of Surgeons and the ISMA Fifty Year Club.

Joseph C. Dusard, M.D.

Dr. Dusard, 83, a retired Bedford physician, died Jan. 16 at Dunn Memorial Hospital.

He was a 1927 graduate of Indiana University School of Medicine and was an Army veteran of World War II. He retired from active practice in 1982.

Dr. Dusard was a former ISMA delegate representing the Lawrence County Medical Society. He was a member of the Bedford Lions Club which, in 1972, contributed funds to Dunn Memorial Hospital to equip an emergency room that was named "The Joe Dusard Room." He was a member of the American Academy of Family Physicians and the ISMA Fifty Year Club. In 1978 he was honored by then-Gov. Otis Bowen for a half century of service to the Bedford area.



Dr. Dyar

Leon Levi, M.D.

Dr. Levi, 74, an Indianapolis internist, died Jan. 8 at St. Vincent Hospital.

He was a 1932 graduate of Indiana University School of Medicine and was an Army veteran of World War

Dr. Levi was a former associate professor of medicine at the I.U. School of Medicine and was active in research, and was recently honored by Ciba-Geigy Corp. for arthritis research. His memberships included the American Academy of Family Physicians, American Geriatrics Society, the Royal Society of Health (London), and the ISMA Fifty Year Club.

Khalil G. Wakim, M.D.

Dr. Wakim, 77, a retired Terre Haute physician, died Feb. 7 at his home.

He was a 1933 graduate of the Medical School, American University of Beirut, Lebanon.

Dr. Wakim, who retired from practice in 1983, served as a professor at the Indiana University School of Medicine during the early 1940s and then joined the staff of the Mayo Clinic, where he remained for 33 years. At the Mayo Clinic, he attained emeritus status after serving 25 years as a full professor of physiology.

William E. (Pinky) Newell

Pinky Newell, 63, athletic trainer of the Purdue University "Boilermakers" from 1949 to 1977, died Oct. 16, 1984.

Mr. Newell, who was inducted into the Indiana Hall of Fame in 1977, played as a backup center on the undefeated 1943 Purdue football team. After serving with the Marines during the remainder of World War II, he returned to Purdue and was graduated in 1947. He became the school's head trainer two years later. He was an assistant professor of physical education and served as chief of the Purdue Health Center's physical therapy department. During this time he also served as a consultant for the AMA in its research on the health aspects of sports.

He was one of the founders of the National Athletic Trainers Association and, in 1967, was named Trainer of the Year. He trained the football College All-Stars for the Chicago Tribune games in 1953, 1954 and 1957 and was athletic trainer for the United States in the 1964 Pan American Games in Brazil. He was on the staff of the 1980 Winter Olympics, held at Lake Placid, N.Y., and during last year's Los Angeles Olympics he served as one of four host trainers.

The Pinky Newell Scholarship Fund, designated for trainers, was established in his honor at Purdue University.

Memorials: Indiana Medical Foundation

The Indiana Medical Foundation, Inc. was formed by the Indiana State Medical Association "for religious, charitable, scientific, literary or educational purposes." It provides financial assistance to support the educational mission of Indiana Medicine.

Contribution made to the Foundation are deductible by donors in accordance with the Internal Revenue Code. Gifts are deductible for Federal estate and gift tax purposes.

The Foundations is pleased to acknowledge the receipt of gifts in remembrance of the following individuals:

Sam W. Litzenberger, M.D. Eli Goodman, M.D. Wemple Dodds, M.D. Edwin W. Dyar, M.D. Maurice E. Glock, M.D. Guy A. Owsley, M.D. Wilbert Smith Eugene S. Rifner, M.D. Elsie A. Reid Lester D. Bibler, M.D.

Francisco Deogracias, M.D.

Dr. Deogracias, 60, an Edinburgh physician and surgeon, died Feb. 12 at his home.

He was a 1950 graduate of the College of Medicine, University of the Philippines, Manila.

Dr. Deogracias was a staff member at Johnson County Memorial Hospital and Bartholomew County Hospital. His professional affiliations included the American College of Gastroenterology, American Society of Abdominal Surgeons and the American Geratrics Society.

Benton M. Hensler, M.D.

Dr. Hensler, 68, a retired Anderson physician, died Dec. 28 at St. John's Medical Center.

He was a 1943 graduate of the University of Cincinnati College of Medicine and was an Army veteran of World War II.

Glen G. Musselman, M.D.

Dr. Musselman, 79, a retired Terre Haute anesthesiologist, died Jan. 1 at Terre Haute Regional Hospital.

He was a 1931 graduate of Indiana University School of Medicine.

Dr. Musselman was a former president of the medical staff at St. Anthony Hospital and served as the hospital's chief of anesthesiology for several years. He was a former president of the Indiana Society of Anesthesiologists.

David M. Jones, M.D.

Dr. Jones, 64, a former Lafayette pediatrician, died Feb. 2 in Yellville, Ark., where he had lived in recent years.

He was a 1944 graduate of Indiana University School of Medicine and served in the Army Medical Corps after graduation.

Dr. Jones, who practiced in Lafayette 18 years, was a diplomate of the American Board of Pediatrics and was a fellow of the American Academy of Pediatrics.

Efren A. Ramirez, M.D.

Dr. Ramirez, 55, a Carmel physician, died Feb. 14 in a fire that swept his home.

He received his M.D. degree in 1956 from Manila Central University.

Dr. Ramirez was on the staff of Community and St. Francis Hospitals in Indianapolis. He was a member of the American Academy of Family Physicians.

John P. Turner, M.D.

Dr. Turner, 71, a Goshen general practitioner, died Feb. 15 at Goshen General Hospital.

He was a 1937 graduate of the University of Iowa College of Medicine and served with the U.S. Health Service from 1938 to 1950.

Dr. Turner, a former chief of staff at Goshen General Hospital, was a member of the American Academy of Family Physicians. He was a former ISMA delegate representing the Elkhart County Medical Society.

This Publication is available in Microform.



University Microfilms International

Ann Arbor, Mi. 48106

Please send additional information
for INDIANA MEDICINE

Name
Institution

Street

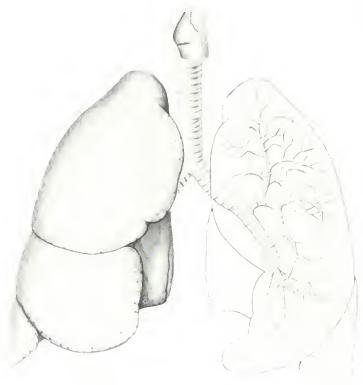
City

State

Zip

300 North Zeeb Road
Dept. P.R.

Consider the causative organisms...



efactor

250-mg Pulvules t.i.d.

offers effectiveness against the major causes of bacterial bronchitis

H. influenzae, H. influenzae, S. pneumoniae, S. pyogenes (ampicillin-susceptible) (ampicillin-resistant)

Brief Summary Consult the package literature for prescribing

Indications and Usage Lector Labeton 1. By Indicated in the treatment of the following infections where caused by Liscophible List 1. The designated micrograms of List 1. The designated micrograms where spindbury infectings including pneumonal auxiliary Listophism of Light Committee Committee Committee Listophism of Light Committee Com

Contamination 1.5 that many contaminate and in patients, with known stempt 1 the explant again group of antihinty.

Warnings, 16.1 NH BEEN AND INVESTIGATION PARENTS, CHEMALD AS HER AND REPORT OF THE ADMINISTRATION OF THE FEBRUARY AND TH

human dose and have revealed no evidence of imparied feithlifly or havin to the felus due to Cector "cetactor Lifly. There are however no adequate and will controlled studies in pregnant winner. Because animal reproduction studies are not always predictive of human response this drug should be used during pregnancy only it cleatly needed. **Missing Michaels** Small amounts of Cector have been detected in mitther s mith following administration of single 500 implements of the control of the contro

use in infants less than one month of age have not been established.
Adverse Reactions. Adverse effects considered related to the apy with Octob are uncommon and are listed netwo.
Lastinates/mail symptoms occur in about 2.5 gencent of patients and include distributed in 1 in 201.
Symptoms of gesendomentohanous childs may appear either symptoms of the proposed of the control o

occurred in patients with a history of pericillin allergy
Other effects considered related to therapy included
osinophilia 1 in 30 patients and gental proritos or vaginitis
CAUSAR Relations by Discretia. Inastory abnormalities in
clinical laboratory test results have been reported Although they
were of uncertain entology they are listed below to serve as
alerting information for the physician. Hepatic: Slight elevations in SGDT SGPT or alkaline
phosphatase values 1 in 40.

Hematopolem: — Transient fluctuations in teukocyte count
predominantly symphocytosis occurring in infants and young
included. If all the physician is the properties of
in 500) or abnormal urinalysis (less than 1 in 200).

(061828)

Note: Ceclor* (cetaclor killy is contraindicated in patients with known alleugy to the cephalospoins and should be given cautiously to percultin alleuge capatients. Pencifilm is the usual diug of choice in the treatment and prevention of streptococcal infections, including the prophylaus of theumatic tives 'See prescribing information.



Ell Lilly Industries, Inc. Calobina, Puerto Rico 00630

COMMERCIAL ANNOUNCEMENTS_

PSYCHIATRIST—Psychiatric services department of general hospital offers part-time contract hours to Board eligible psychiatrist at satellite offices located in Frankfort and Tipton, Ind. Qualified candidates may contact Steven W. Adrianse, Director of Personnel Services, or Dr. Robert Adams, M.D., 3500 S. Lafountain, Kokomo, Ind. 46902—(317) 453-8560. EOE M/F H

STAFF PSYCHIATRIST - A Board eligible or certified psychiatrist is needed as Director of Outpatient Psychiatric Services in a 152-bed general hospital. A 60-bed, \$5 million psychiatric wing will open in the fall of 1985. Salary range is \$65,000 to \$100,000 depending on experience, special skills and certification. There is a liberal fringe benefit package which includes health, dental and life insurance as well as generous noncontributory retirement program. Indiana license required. Send curriculum vitae to Steven W. Adrianse, Director of Personnel, Howard Community Hospital, 3500 S. Lafountain, Kokomo, Ind. 46902, or call Dr. Robert Adams, (317) 453-8529. EOE M/F/H

EMERGENCY CONSULTANTS, INC. has openings in Texas, Ohio, Illinois, Michigan, Wisconsin, Indiana, New York, Virginia, West Virginia and Pennsylvania emergency departments. Independent contractor status with competitive compensation and paid malpractice insurance. Forward CV with availability date and geographic preference to: Emergency Consultants, Inc., 2240 South Airport Road, Room 20, Traverse City, MI 49684 – 1-800-253-1795 or in Michigan 1-800-632-3496.

EMERGENCY MEDICINE: Opportunity immediately available for career-oriented emergency medicine specialists to join newly formed group. Both Medical Director and full-time staff physician needed. Prestigious hospital with ultramodern ED, outstanding benefits. For details contact Susan Himburg, Decatur Memorial Hospital, 2300 N. Edwards, Decatur, IL 62526—(217) 877-8121, ext. 3000.

ATTENTION ESTABLISHED M.D.s / JUNE GRADUATES: Private practice positions available for Internist / Pediatricians / Psychiatrist / Surgeons (General-Thoracic-Orthopedics) / ObGyn Family Practice. Need to be board eligible/certified. Multi-specialty groups within Indiana/southern Illinois area. For further information call collect to Linda Wallace, R.N.—(317) 924-1402.

ORTHOPEDIC SURGEON An excellent oppor tunity is available for two orthopedic surgeons to join a progressive medical group in central Min nesota. The community serves a population base of 225,000 individuals and is an excellent base for an orthopedic surgeon. St. Cloud, Minn., is the hub of the state and is home to three major colleges. It is geographically located to provide quick access to the Metropolitan-Twin Cities area. The St. Cloud community has a 500-bed hospital with all the latest medical and technological advancements to assist the practicing orthopedic surgeon. If interested in this excellent opportuni ty, please call collect either Dr LaRue Dahlquist, President, or Daryl Mathews, Administrator, at (612) 251-8181, and or send curriculum vitae to St. Cloud Medical Group, 1301 W. St. Germain St., St. Cloud, Minn, 56301

FOR SALE: 50 wooded, rolling acres. 86th St and Lafayette Road, Indianapolis. 10 minutes from downtown and St. Vincent Hospital. Contact Russell Fortune III, (317) 635-2711 or (317) 255-9060.

PHYSICIANS - Flexible general medicine position; competitive compensation. Contact Dennis Flake at (317) 923-3737 or send resume to House Call Physicians, 3561 N. Pennsylvania St., Indianapolis 46205.

PHYSICIAN WANTED Established convenient care facility in midwestern community. Experience in Family Practice or Emergency Medicine. Competitive salary and benefits. Flexible schedule Reply to INDM, Box 1631, Marion, IN 46952.

EMERGENCY MEDICINE Position Available: Opportunity for experienced Emergency Physician to join professional group practicing in northwestern Indiana. Contact Dr. Daniel Philipsborn at (312) 248-5557.

OFFICE SPACE AVAILABLE: Greenwood Profes sional Park. Excellent accomodations in an established medical complex. Attractive. Well landscaped setting. Plenty of convenient parking. Complete laboratory and radiological services on premises. Centrally located in the fastest growing area of Indiana. Two miles from new University Heights Hospital. Ideal location for the individual practitioner or as an additional location for group practices. For additional information please call (317) 881-3565.

ACCOUNTS RECEIVABLE FUNDING—Convert receivables to cash! Accelerate your on going cash flow. Please contact: Roy Berry & Associates, Inc., (317) 849 9391.

EMERGENCY MEDICINE Position Available Opportunity for experienced Emergency Physician to join professional group practicing in Hobart and Gary, Indiana. Contact Dr. Cornelius Arnold at (312) 747-7115.

MEDICAL DIRECTOR — Immediate opening for full time Medical Director of a developing community mental health center west of Indianapolis, special ty in psychiatry, Board-eligible, preferably Board-certified, post-residency experience required Contact John L. Clodfelter, Ph D., Director, Outpatient Services, Cummins Mental Health Center, P.O. Box. 158, Danville, Ind. 46122 (317) 745-5419.

RENT LUXURIOUS FLORIDA condominium Hutchinson Island. Two bedroom, two bath. Golf, tennis, pool, private beach. Call Tom Stayton, (317) 636-4535

HAWAII CONDO at Wailea on Maui Two bedrooms, two full baths. Beaches, pools, tennis. Enjoy special golf fees and times on 2 courses For rent by owner. Call toll free 1-800-367 2950.

FOR SALE: Country estate. 2 story Southern Colonial. 6 Bedrooms, 23x28 family room, dining room, music room, 18x20 kitchen, finished basement, 3 fireplaces, 4½ baths, available with up to 20 acres and barns. Ideal location in southeast Marion County, 12 minutes from St. Francis, Community, University Heights and downtown Indianapolis, 3 miles from I-65. (317) 786-2286, 9 a.m. to 5 p.m.

FAMILY PRACTICE PHYSICIAN—NEAR CENTRAL INDIANA-ILLINOIS BORDER—Small community—small group—good coverage—replace retired doctor, so instant patient load. Modern general hospital—trauma center—modern clinic nearby—board certified or eligible, guarantee plus productivity. Safe, friendly community, variety fine housing, recreation opportunities abound. Contact Carl Genrich, 312-537-6640.

CARE FOR YOUR COUNTRY.

As an Army Reserve physician, you can serve your country and community with just a small investment of your time. You will broaden your professional experience by working on

experience by working on interesting medical projects in your community. Army Reserve service is flexible, so it won't interfere with your practice. You'll work and consult with top physicians during monthly Reserve meetings. You'll also attend funded continuing medical education programs. You will all share the bond of

being civic-minded physicians who are also commissioned officers. One important benefit of being an officer is the non-contributory retirement annuity you will get when you retire from the Army Reserve. To find out more, simply call the number below.

ARMY RESERVE. BE ALL YOU CAN BE.

Captain Katherine Delk-Calkins Call Collect: 312-926-3161

Membership Roster

The 1985-86 edition of the Indiana State Medical Association Membership Roster will be available in April. The roster will be mailed automatically to all ISMA members.

Additional copies of the roster will be sold for \$15.00 each for a physician member and \$30.00 each for a non-member, payable in advance. Checks should be payable to the Indiana State Medical Association.

For more information or to order copies, write to the ISMA Membership Department, Attn: Rosanna Iler, 3935 N. Meridian St., Indianapolis, Ind. 46208.

ADVERTISERS INDEX

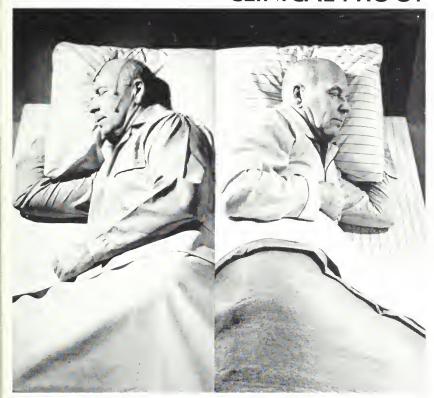
April 1985 Vol. 78 No. 4 Advanced Information Systems.......253 American Physicians Life......Cover Campbell Laboratories, Inc......330 Commercial Announcements......351 Cycare......317 Eli Lilly and Company......350 Fairbanks Hospital......334 Indiana Medical Bureau.....300 Knoll Pharmaceutical......302-304 Lincoln National Life......290 Medical Protective Company...........305 Physicians' Directory......340-346 Physicians Insurance Co. of Indiana.....287 Roche Laboratories Covers St. Paul Fire & Marine Insurance......331

In accepting advertising for publication, INDIANA MEDICINE has exercised reasonable precaution to insure that only reputable, factual advertisements are included. However, we do not have facilities to make comprehensive or complete investigation, and the claims made by advertisers in behalf of goods, services and medicinal preparations, apparatus or physical appliances are to be regarded as those of the advertisers only. Neither sanction nor endorsement of such is warranted, stated or implied by the association.

University Microfilms......349

Upjohn Company......279

COMPLETE LABORATORY DOCUMENTATION¹⁻⁵... EXTENSIVE CLINICAL PROOF



FOR THE PREDICTABILITY CONFIRMED BY EXPERIENCE

DALMANE® flurazepam HCI/Roche

THE COMPLETE HYPNOTIC PROVIDES ALL THESE BENEFITS:

- Rapid sleep onset1-6
- More total sleep time1-6
- Undiminished efficacy for at least 28 consecutive nights²⁻⁴
- Patients usually awake rested and refreshed^{7.9}
- Avoids causing early awakenings or rebound insomnia after discontinuation of therapy^{2,5,10-12}

Caution patients about driving, operating hazardous machinery or drinking alcohol during therapy. Limit dose to 15 mg in elderly or debilitated patients Contraindicated during pregnancy.

DALMANE® flurazepam HCI/Roche

References: 1. Kales J et al. Clin Pharmacol Ther 12 691-697, Jul-Aug 1971 2. Kales A et al. Clin Pharmacol Ther 18 356-363, Sep 1975 3. Kales A et al. Clin Pharmacol Ther 19 576-583, May 1976 4. Kales A et al. Clin Pharmacol Ther 32 781-788, Dec 1982. 5. Frost JD Jr, DeLucchi MR. J. Am. Genatr. Soc. 27-541-546, Dec 1979 6. Kales A. Kales JD J. Clin Pharmacol 3:140-150, Apr. 1983. 7. Greenblatt DJ. Allen MD, Shader RI. Clin Pharmacol Ther 21 355-361, Mar 1977. 8. Zimmerman AM. Curr Ther. Res. 13 18-22, Jan 1971. 9. Amrein R. et al. Drugs Exp. Clin Res. 9(1) 85-99, 1983. 10. Monti JM. Methods Find Exp. Clin Pharmacol 3:303-326, May 1981. 11. Greenblatt DJ. et al. Sleep 5(Suppl. 1) S18-S27, 1982. 12. Kales A et al. Pharmacology 26 121-137, 1983.

DALMANE* @ flurazepam HCl/Roche

Before prescribing, please consult complete product information, a summary of which follows:

product information, a summary of which follows: Indications: Effective in all types of insomnia characterized by difficulty in falling asleep, frequent nocturnal awakenings and/or early morning awakening, in patients with recurring insomnia or poor sleeping habits, in acute or chronic medical situations requiring restful sleep. Objective sleep laboratory data have shown effectiveness for at least 28 consecutive nights of administration. Since insomnia is often transient and intermittent, prolonged administration is generally not necessary or recommended. Repeated therapy should only be undertaken with appropriate patient evaluation.

Contraindications: Known hypersensitivity to flurazepam HCl; pregnancy Benzodiazepines may cause fetal damage when administered during pregnancy Several studies suggest an increased risk of congenital malformations associated with benzodiazepine use during the first firmester. Warn patients of the potential risks to the fetus should the possibility of becoming pregnant exist while receiving flurazepam. Instruct patient to discontinue drug prior to becoming pregnant. Consider the possibility of pregnancy prior to instituting therapy.

Warnings: Caution patients about possible combined effects with alcohol and other CNS depressants. An additive effect may occur if alcohol is consumed the day following use for nightime sedation. This potential may exist for several days following discontinuation Caution against hazardous occupations requiring complete mental alertness (e.g., operating machinery, driving). Potential impairment of performance of such activities may occur the day following ingestion. Not recommended for use in persons under 15 years of age. Though physical and psychological dependence have not been reported on recommended doses, abrupt discontinuation should be avoided with gradual tapering of dosage for those patients on medication for a prolonged period of time. Use caution in administrant processing the proposed period of time. Use caution in administrant process.

Precautions: In elderly and debilitated patients, it is recommended that the dosage be limited to 15 mg to reduce risk of oversedation, dizziness, confusion and/or ataxia. Consider potential additive effects with other hypnotics or CNS depressants. Employ usual precautions in severely depressed patients, or in those with latent depression or suicidal tendencies, or in those with impaired renal or hepatic function.

with impaired renal or hepatic function.

Adverse Reactions: Dizziness, drowsiness, lightheadedness, staggering, ataxia and falling have occurred, particularly in elderly or debilitated patients. Severe sedation, lethargy, disorientation and coma, probably indicative of drug intolerance or overdosage, have been reported. Also reported headache, heartburn, upset stomach, nausea, vomiting, diarrhea, constipation, GI pain, nervousness, talkativeness, apprehension, irritability, weakness, palpitations, chest pains, body and joint pains and GU complaints. There have also been rare occurrences of leukopenia, granulocytopenia, sweating, flushes, difficulty in focusing, blurred vision, burning eyes, faintness, hypotension, shortness of breath, pruritus, skin rash, fry mouth, bitter taste, excessive salivation, anorexia, euphoria, depression, slurred speech, confusion, restlessness, hallucinations, and elevated SGOT, SGPT, total and direct bilirubins, and alkaline phosphatase; and paradoxical reactions, e.g., excitement, stimulation and hyperactivity

Dosage: Individualize for maximum beneficial effect. *Adults:* 30 mg usual dosage; 15 mg may suffice in some patients. *Elderly or debilitated patients:* 15 mg recommended initially until response is determined

Supplied: Capsules containing 15 mg or 30 mg flurazepam HCl.



Roche Products Inc. Manati, Puerto Rico 00701

DOCUMENTED IN THE SLEEP LABORATORY 1.5.

PROVEN IN THE PATIENT'S HOME





FOR A COMPLETE NIGHT'S SLEEP

DALMANE (V) flurazepam HCl/Roche STANDS APART 15-MG/30-MG CAPSULES

See preceding page for references and summary of product information. Copyright © 1984 by Roche Products Inc. All rights reserved.



